



Catasauqua Area School District Department of Athletics Sport Related Concussion Management

Policy Statement: This document outlines policies and procedures to assist in the management of sport-related concussion (SRC) and safe return to play for athletes within the Catasauqua Area School District (CASD) managed by Lehigh Valley Health Network Sports Medicine Department (LVHN).

Purpose: The LVHN Department of Sports Medicine and CASD recognize that sport-related concussions (SRC) pose a significant health risk for those participating in athletics. The Sport Related Concussion Management Plan has been designed to guide the assessment and management of the student athlete who may have suffered a SRC. The management plan includes the following components: education, baseline assessment, acute evaluation, post-concussion management/referral, return to learn and return to sport.

Definition of a Concussion:

1. SRC is defined as a complex pathophysiological process affecting the brain, induced by traumatic biomechanical forces.
2. SRC may be caused by either a direct blow to the head, face, neck or elsewhere on the body with an impulsive force transmitted to the head.
3. SRC typically results in the rapid onset of short-lived impairment of neurological function that resolves spontaneously; however, in some cases, signs and symptoms evolve over a number of minutes to hours.
4. SRC may result in neuropathological changes, but acute clinical signs and symptoms largely reflect a functional disturbance rather than a structural injury and, as such, no abnormality is seen on standard structural neuroimaging studies, such as CT, MRI, etc.
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Common Signs and Symptoms of a Concussion:

It is necessary that the Athletic Trainer (AT) and coaching staff be aware of common signs and symptoms of concussions to properly recognize and intervene on behalf of the student athlete. Signs and symptoms include, but are not limited to:

Headache or head pressure
Nausea
Feeling sluggish/hazy/foggy
Confusion
Concentration difficulty
Memory problems

Balance problems
Dizziness
Appears dazed/stunned
Forgets instruction
Unsure of game/score
Appears less coordinated

Double or blurred vision
Sensitivity to light/noise
Answers questions slowly
Loses consciousness

These signs and symptoms may be felt or observed at the time of injury, a few hours later, or up to a few days to weeks post injury depending on the severity of the SRC. Clinical signs, symptoms, and comorbidities not rationally explained through other conventional means eg, medication, drug, alcohol interaction, pre-existing medical conditions, etc. should warrant further consideration and clinical evaluation.

Education:

Student athletes, parents, and coaches will be educated on SRC.

Students: Every school year all student athletes will be required to read, review and sign the CASD Department of Athletics Concussion Protocol and Guidelines. This form will be included in the Pre Participation Exam Packet (PPE).

Parents: Every school year all parents/guardians will be required to read, review and sign the CASD Department of Athletics Concussion Protocol and Guidelines. This form will be included in the Pre Participation Exam Packet (PPE).

Coaches: All coaches must complete concussion education training annually in accordance with the PIAA and Pennsylvania Department of Education.

Baseline Testing

Each student-athlete will be required to complete a Concussion Baseline Questionnaire prior to the season starting. The questionnaire will be used should a student-athlete sustain an SRC. The baseline form will be compared to the post-concussion evaluation form. This form will be completed once a school year.

Concussion Recognition and Diagnosis

In any circumstance where a concussion is suspected, the first priority is to remove the student athlete from further practice or competition until a thorough concussion evaluation is completed by an appropriate medical professional. Furthermore, if there is a question about the state of mental status, it is best to err in the direction of conservative assessment and withhold the student athlete from activity until reevaluated by an appropriate medical examiner (AME).

Acute Evaluation:

Sideline evaluation of cognitive function is an essential component in the assessment of this injury. Brief neuropsychological (NP) testing batteries that assess attention and memory function have been shown to be practical and effective. SRC is an evolving injury in the acute phase, with rapidly changing clinical signs and symptoms, which may reflect the underlying physiological injury to the brain. The majority of SRC occurs without a loss of consciousness. There is no perfect diagnostic test or marker that an AT can rely on for immediate diagnosis. In all situations where a SRC or head injury is suspected, the student athlete will be removed from practice or competition to be assessed by an appropriate medical professional. The student athlete will be monitored during this time for any signs or symptoms of an impending emergency which may include but are not limited to persistent

nausea/vomiting, focal neurologic changes, declining level of consciousness, seizure, witnessed loss of consciousness, etc.

The appropriate medical professional, with specific training in the evaluation and management of sports related concussion, should evaluate the student athlete with a consistent thorough clinical examination. Every attempt should be made to complete clinical evaluations in a distraction-free environment (locker room or medical office) rather than the sideline. Regardless of the assessment measures, the evaluation should include an assessment of symptoms, physical signs, balance impairment, behavioral changes, and cognitive impairment. The suspected diagnosis of SRC can include one or more of the following clinical domains.

- Symptoms: somatic (headache), cognitive (feeling like in a fog), and/or emotional symptoms (lability)
- Physical Signs (loss of consciousness, amnesia, neurological deficit)
- Balance impairment (gait unsteadiness)
- Behavioral changes (irritability)
- Cognitive impairment (slowed reaction time)
- Sleep/wake disturbance (somnolence, drowsiness)

A detailed concussion history is important in both the pre-participation examination and initial injury evaluation.

In the event that the student athlete has a significant head or neck injury or worsening warning signs/symptoms including, but not limited to:

- Glasgow Coma Scale <13
- Loss of consciousness greater than 30 seconds
- Deterioration of neurological function
- Decreasing level of consciousness
- Abnormally unequal, dilated, or unreactive pupils
- Any signs or symptoms of associated head/neck injuries, spine or skull fractures or bleeding
- Mental status changes: lethargy, difficulty maintaining arousal, confusion, or agitation
- Slurring of speech
- Headaches that are worsening overtime
- Cranial nerve deficits

The AT should activate the EAP and arrange for immediate and continued evaluation of the student athlete.

Post-Concussion Management/Referral

Any student athlete diagnosed with a concussion will be sent home with “Home Care Instructions following a Concussion” sheet and instructed on the importance of physical and cognitive rest. Any student athlete who is exhibiting concussion symptoms or suspected to have a concussion must have their parent(s)/guardian notified. The athlete should be released only to direct supervision of the parent(s)/guardian unless arrangements have been made between AT and parent(s)/guardian.

All student athletes suspected of SRC are required to schedule an appointment with an appropriate medical provider. Student athletes under the age of 14 will only be evaluated at the LVHN Concussion and Head Trauma Program. The evaluation should take place within 72 hours from the date of injury. Please utilize the care coordinator to assist in all scheduling of student athletes to make a more fluid patient focused experience.

The athletic trainer will initiate contact with the appropriate school personnel to notify of suspected/diagnosed concussion. Contact will be made with the school nursing staff and athletic

director. The athletic trainer will complete the Faculty Information Sheet and send it via email to the nurse and athletic director. The nurse will notify the student-athlete's teachers and guidance counselor of concussion. Temporary academic modifications may be requested by the athletic trainer until physician evaluation. This will be communicated via email with the nurse by using the Academic Modifications Request Form.

Should an athlete choose care from a non LVHN provider the written protocol discussed herein will be used to make the final return to participation determination.

The AT will initiate communication with their team physician to discuss each diagnosed concussion and conduct serial follow-up evaluations, which should include a graded symptom checklist. Once the student athlete self-reports he/she is asymptomatic, via the graded symptoms checklist, the SCAT 5 should be repeated and compared to baseline

It is possible a student athlete will become asymptomatic and have a "normal"/baseline SCAT5 on the day of injury or within 24 hours post injury. Based on his/her sideline evaluation, he/she is still diagnosed with a SRC while returning to a baseline state.

Rest

Prescribed rest is one of the most widely used interventions in this population. The basis for recommending physical and cognitive rest is that rest may ease discomfort during the acute phase of recovery by mitigating post-concussion symptoms and/or that rest may promote recovery by minimizing brain energy demands following a concussion. After a brief period of rest during the acute phase (24-48 hours) after injury, student athletes can be encouraged to gradually and progressively become more active while staying below their cognitive and physical symptoms-exacerbation thresholds (i.e. activity level should not bring on or worsen their symptoms.) Activities that require physical activity, concentration, and attention (scholastic work, video games, text messaging, watching television, physical education classes, observing practice or games) may exacerbate symptoms and possibly delay recovery.

Student athletes will be allowed to return to class the following day as long as their symptoms do not increase with cognitive loads. Student athletes will be allowed to utilize the school nurse's office for periodic breaks as needed. If a cognitive load increases symptoms, student athletes will be referred to an appropriate LVHN medical professional to be evaluated for potential academic accommodations.

Referral

Student athletes with symptoms lasting more than 24 hours will be further evaluated by an appropriate medical professional for consideration of additional diagnosis and concussion management options. These re-evaluations will occur as needed until all symptoms have resolved and the student athlete is participating in sport activity. Additional diagnoses may include, but are not limited to:

- Post-concussion syndrome
- Sleep disorders
- Migraines or other headache disorders
- Mood disorders
- Ocular/vestibular dysfunctions

Rehabilitation

Closely monitored active rehabilitation programs involving controlled sub-symptom threshold, submaximal exercise have been shown to be a safe and may be of benefit in facilitation recovery.

After 48-72 hours, student athletes may begin light aerobic exercise and or concussion rehabilitation under direct supervision by the AT. All exercise and rehabilitation prescriptions will be at the discretion of the treating provider. If exercise or rehabilitation increases symptoms, another 24 hours of rest for high school and 48 hours for middle school will be given to the student athlete before attempting again. Student athletes must resume classroom attendance prior to progressing past the light aerobic exercise phase of the RTS progression to determine if symptoms return with increased cognitive function. Clearances will not be accepted from emergency room physicians or doctors of chiropractic medicine.

Return to Learn

Depending on the student athlete's symptoms and his/her response to cognitive activity, he/she may be prescribed an individualized plan to remain at home and gradually return to academic work while these symptoms resolve. The following process will be used by the AT to assist the student athlete with academic concessions.

1. Following concussion evaluation, the AT will make contact with the appropriate school personnel via email. These personnel are the school nurse and athletic director.
2. The school nurse will then contact the student athlete's guidance counselor and teachers to inform them of the injury and that daily progress evaluations are being conducted by the AT staff.
3. The student will meet with a provider to discuss and determine appropriate academic accommodations and draft a Faculty Accommodation Letters that the student can give to his/her instructors based on the severity of the student's condition. They will be provided with the most recent evaluation, graded symptom checklist and medical documentation to assist in determining appropriate accommodations.
4. Upon resolution of symptoms and/or improvement of objective evaluation scores, the AT will contact the school nurse to indicate that academic accommodations are no longer necessary. The school nurse will communicate with the involved faculty.

**In addition to the potential accommodations to be considered listed below, the student athlete may also be excused from athletic study hall and mandatory team functions (observing practice, film sessions and community service) to allow for additional cognitive rest during this time.

Possible list of accommodations to be considered based upon symptoms include, but are not limited to:

- Excused class absences
- Excused from physical activity
- Rescheduled test/project date or due dates
- Additional time to complete assignments
- Ability to make up missed course work
- Additional time to complete tests
- Alternate test taking environment
- Alternate to note taking
- Limited exposure to electronic media

Other accommodations may be determined appropriate for the student reflective of their individual circumstances. All academic accommodations will be made by a provider who will continue to follow each case through the healing process. Accommodations may last up to two weeks, in rare cases accommodations could last a month or longer. Student athletes with accommodations lasting more

than two weeks, will be re-evaluated by the team physician for continued accommodations. It is important to note that each concussion will be different and no two concussions are alike. A student athlete should fully return to academics prior to returning to sport participation.

Return to Sport

Continued post-concussive symptoms, prior concussion history and any diagnostic testing results along with physical exam, will be utilized when establishing a timeline for a student athlete’s return to activity. It is important to note that this timeline could last over a period of days, weeks or months, and may lead to a potential medical disqualification from athletics. All cases will be handled on a case-by-case basis.

The return to sport (RTS) decision must be individualized for the specific circumstances of each concussion. There is no percentage threshold or score for RTS. The AT, in consultation with treating physician, should exercise sound clinical judgment throughout the RTS process. Clearance by a physician indicates that a student athlete is ready to begin the RTS protocol. Only the proper AME (Physician, Nurse Practitioner, or Physician’s Assistant) can clear a student athlete to RTS. A student athlete should be asymptomatic at rest for 48 hours and return to baseline neurocognitive and balance levels, prior to the initiation of the RTS protocol past the light aerobic exercise phase, and return to learn must be completed unless otherwise instructed by a team physician. The RTS protocol, figure 1 below, is designed to increase cardiovascular and sport specific activities in a gradual fashion. Progression through the incremental RTS protocol must be supervised and documented by an AT on a daily basis. Documentation should include return of symptoms, as well as neurocognitive and balance exams to track recovery. Should symptoms return during exertional testing, the student athlete is to report symptom return immediately and testing will be discontinued. The student athlete will resume rest for the remainder of the day and until asymptomatic prior to returning to the step they had been attempting when symptoms appeared. The duration of this additional rest will be decided on a case by case basis. Progression through the RTS will vary for each individual. RTS will only be considered once a student athlete is free of concussion symptoms at rest as well as during, after exertion and all academic accommodations have been lifted. RTS progression steps will last at least 24 hours. The RTS progression will take at least 4 days to complete. If any symptoms worsen during exercise the student athlete will go back to the previous step.

- If a student chooses to obtain medical clearance from another physician, LVHN/CASD Athletic Trainers will not allow any athlete to return to participation until they meet the criteria outlined by the LVHN sport-related concussion management plan. **Any notes from another physician will not be used to override CASD/LVHN Sport-Related Concussion Management Plan.**
- If the Athletic Trainer determines a student is not ready to return to full participation, yet they were cleared by a non LVHN physician, the Athletic Trainer may withhold the student athlete from participation until proper and further evaluation is completed.
- All SRC require physician clearance and RTS protocol by AT, including those that take place at the end of the sports season. Failure to get proper clearance and complete the RTS protocol will disqualify a student athlete from the next season/sport until the protocol is completed.

Figure 1

Rehabilitation Stage	Functional Exercise at Each Stage	Objective of Each Stage
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Symptom limited activity	Daily activities which do not provoke symptoms	Recovery
Light aerobic exercise	Walking or stationary biking at slow to medium pace. No resistance training	Increase HR
Sport-specific exercise	Begin running program, running drills with no head impact	Add movement
Non-contact training drills	Increase running intensity/duration. Harder training drills (passing/shooting drills). May begin resistance training	Exercise, coordination, and cognitive load
Full contact practice	Following medical clearance, participation in full training	Assess functional skills, restore confidence
Return to Competition		

Final determination of student athlete return to sport decisions will be made by an approved LVHN medical professional or his/her medically qualified designee. This includes but is not limited to members of the LVHN Sports Medicine Concussion Program.

The CASD Policy on Sport Related Concussion Management will be reviewed annually.

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