

Clear Creek ISD
Athletic Department
Concussion Management Protocol



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Clear Creek ISD Athletic Department Concussion Management Protocol

Introduction and Overview

Concussion or Mild Traumatic Brain Injury (MTBI)

A concussion, or MTBI, is a type of traumatic brain injury that interferes with normal function of the brain. A concussion is caused by a bump, blow, or jolt to the head or body. Any force that is transmitted to the head causes the brain to literally move or twist within the skull, potentially resulting in a concussion. It is a multisystem injury which can affect the brain, cervical spine, vestibular, ocular motor, and autonomic nervous system. It can cause blood flow changes, biochemical changes, structural changes, inflammation, nerve injury, endocrine changes and emotional disturbance.

A concussion is primarily an injury that interferes with how the brain works. It appears to be a very complex injury affecting both the structure and function of the brain. The sudden movement of the brain causes stretching and tearing of brain cells, damaging the cells and creating chemical and blood flow changes in the brain. While there is damage to brain cells, the damage is at a microscopic level and cannot be seen on MRI or CT scans. Therefore, the brain looks normal on these tests, even though it has been seriously injured.

What may appear to be only a mild jolt or blow to the head or body can result in a concussion. You've probably heard the terms "ding" and "bell-ringer." These terms were once used to refer to minor head injuries and thought to be a normal part of sports. There is no such thing as a minor brain injury. Any suspected concussion must be taken seriously.

This injury causes brain function to change which results in an altered mental state (either temporary or prolonged). Physiologic and/or anatomic disruptions of connections between some nerve cells in the brain occur. Loss of consciousness only occurs in 5-10% with concussion; thus, it is enough to cause, but not necessary to have a concussion.

Concussions can have serious and long-term health effects. Signs and symptoms include, but are not limited to:

Observable signs

- Appears dazed or stunned
- Confused about assignment or position
- Forgets instruction
- Unsure of game, score or opponent
- Moves clumsily
- Answers questions slowly
- Loses consciousness (even briefly)
- Shows mood, behavior and personality changes
- Can't recall events prior to or after hit or fall
- Loses balance or is unsteady when walking

Symptoms reported by athlete

- Headache or "pressure" in head
- Nausea or vomiting
- Balance problems or dizziness
- Double or blurry vision
- Sensitivity to light or noise
- Feeling sluggish, hazy, foggy or groggy
- Concentration or memory problems
- Confusion
- Just not "feeling right" or is "feeling down"
- More fatigued than usual
- Change in sleeping pattern

Once this injury occurs, the brain is vulnerable to further injury and very sensitive to any increased stress until it fully recovers.

Second Impact Syndrome (SIS)

Second impact syndrome (SIS) refers to catastrophic events which may occur when a second concussion occurs while the athlete is still symptomatic and healing from a previous concussion. The second injury may occur within days or weeks following the first injury. Loss of consciousness is not required. The second impact causes brain swelling leading to other widespread damage to the brain. SIS is very rare but can be fatal. Most often SIS occurs when an athlete returns to activity without being symptom free from the previous concussion. This is why recognition of a concussion is imperative.

Recognition of Concussion in the Athlete

All athletes are at a higher risk of suffering a concussion, or MTBI. The rate of concussion varies between sports with the highest rate being about 20% such as in football or rugby. Many concussions can go undiagnosed and unreported, so it is difficult to estimate precisely the rate of concussion in any sport. Symptoms are not always clear-cut or the same and knowing when it is safe for an athlete to return to sport is not always clear.

Post-concussion symptoms can be quite subtle and may go unnoticed by the athlete, team medical staff, or coaches. Many coaches and other team personnel may have limited training in recognizing signs of concussions and therefore may not accurately diagnose the injury when it has occurred. Players may be reluctant to report concussive symptoms for fear that they will be removed from the game, and this may jeopardize their status on the team, or their athletic careers.

A student-athlete shall be removed from practice or competition immediately if one of the following persons believes the student-athlete might have sustained a concussion:

- Athlete's Coach
- Parent/Guardian
- Licensed Health Care Professional

Initial Evaluation of Suspected Concussion:

In the event of a suspected concussed student-athlete and/or a student-athlete is exhibiting any concussion-related signs or symptoms (somatic, cognitive, affective, or sleep/wake disturbances) the athlete will be immediately removed from practice/game. Aside from concussion, assessment will include a clinical evaluation for more serious injury such as C-spine injury, neurological deficits, skull fracture, intracranial bleeding, and catastrophic injury.^{1,3,4} Sideline evaluation should be based on recognition of injury, assessment of symptoms, cognitive and cranial nerve function, and balance, recognizing a suspected concussion is best approached through the utilization of multidimensional testing.^{1,3,4} Somatic, cognitive, and affective function will be evaluated via the SCAT5 (**see form under evaluation tools – section 3**); objective clinical evaluations may substitute or supplement the SCAT5 and may vary case to case.

▪ **Sport Concussion Assessment Tool 5th Edition (SCAT5) – ATHLETIC TRAINER OR PHYSICIAN**

The SCAT5 is a neuropsychological test battery that will be used for the initial assessment of a concussion.^{1,3,4,5} A Rapid Neurological Screen is included in the SCAT5 and assesses the cervical spine, athlete's speech, ability to read, balance, gait, visual tracking, and finger-to-nose coordination.⁵ The student-athlete will be given the **IMMEDIATE OR ON-FIELD ASSESSMENT SCAT5** at the time of initial evaluation. Follow-up testing, and evaluation of the student-athlete will take place later in the event (example, half time or post game) and prior to the student-athlete's departure from the venue utilizing the **OFFICE OR OFF-FIELD ASSESSMENT SCAT-5**.

▪ **Vestibular Ocular-Motor Screening (VOMS) for Concussion – ATHLETIC TRAINER OR PHYSICIAN**

Student-athletes will have a comprehensive clinical neurological evaluation which includes the following areas: mental status/cognition, oculomotor function, gross sensorimotor, coordination, gait, vestibular function, and balance.^{1,3,4} Vestibular and oculomotor impairments and symptoms occur in approximately 60% of athletes after a sports-related concussion.^{6,5} The VOMS is a clinical screening tool used in conjunction with other clinical assessments that aid in identifying patients with concussions; this tool measures symptom provocation of 5 domains. The VOMS also provides valuable information that serves as a guide for additional assessment and specific rehabilitation.^{6,5} This tool will be utilized in conjunction with SCAT5 and will assist in directing therapeutic interventions.

▪ **Concussion Recognition Tool (CRT) – Coaches (if no athletic trainer or physician available)**

Evaluation and Management for Concussion

1. Athlete does not return to a game or practice if he/she has any signs or symptoms of Mild Traumatic Brain Injury (concussion).
2. Observe athlete for status changes every 20 minutes for the first 90 minutes after the injury. Do not allow the athlete to be alone after the concussion.
3. Parent/Guardian is notified of injury & athlete is referred to a physician of their choice.
4. Provide home instructions to parent or legal guardian.
5. Do not allow athlete to drive home day of concussion.
6. Doctor or athletic trainer recommended school modifications.
 - a. Athletic staff will notify school administrators/teachers of the student-athlete that he/she has a concussion.
 - b. Student-athlete may need special accommodations such as limited computer work, reading activities, testing, assistance to class, etc. until symptoms subside.
 - c. Student-athlete may only be able to attend school for half days or may need daily rest periods until symptoms subside with physician authorization.

Clear Creek ISD follows HB 2038, 82(R). A student-athlete may not participate in an interscholastic athletic activity (practice or competition) for a school year until both the student-athlete and the student-athlete's parent or guardian or another person with legal authority to make medical decisions for the student-athlete have signed a form for that school year that acknowledges receiving and reading written information that explains concussion prevention, symptoms, treatment, and oversight and that includes guidelines for safely resuming participation in an athletic activity following a concussion. The form must be approved by the University Interscholastic League (***Section 6 Appendix A - UIL Concussion Acknowledgment Form***).

Recovery for the Athlete

The first step in recovering from a concussion is rest. Rest is essential to help the brain heal. Student-athletes with a concussion need rest from physical and mental activities that require concentration and attention as these activities may worsen symptoms and delay recovery. Exposure to loud noises, bright lights, computers, video games, television and phones (including texting) all may worsen the symptoms of concussion. As the symptoms lessen, usually within 72 hours, gradual increases in physical and cognitive activity is encouraged if symptoms do not increase. The idea of sub-symptomatic activity with a gradual increase is known to speed up recovery compared to no activity until asymptomatic.

*Light exercise after a concussion is beneficial and helps with recovery. Light exercise helps improve blood flow to the brain and improves autonomic function. **Exercise as treatment should not be confused with or substituted for return to sport exercise**, although they may seem similar. The doctor or athletic trainer will determine what type of light exercise would be appropriate prior to starting a formal Return-to-Sport (RTS) protocol.*

Concussion Management of the Athlete

It is crucial to allow enough healing and recovery time following a concussion to prevent further damage. Athletes who return to sport before fully recovering are at a much higher risk of another concussion that will cause a more severe injury. Research suggests that the effects of repeated concussions are cumulative over time.

Most athletes who experience an initial concussion can recover completely if they do not return to contact sports too soon. Following a concussion, there is a period of change in brain function that may last anywhere from 24 hours to several days. A small percentage of 10-15% can take much longer. During this time, the brain may be vulnerable to more severe or permanent injury such as Second Impact Syndrome (SIS). If the athlete sustains a second concussion during this time period, the risk of more severe or lasting brain injury increases.

The Clear Creek ISD Concussion Oversight Team consists of:

Dr. Theresa Phan, MD- Primary Care Sports Medicine – Houston Methodist Hospital
Kenneth Podell, Ph.D., FACPN – Neuropsychologist – Houston Methodist Hospital
Deidre Duke, LAT, ATC – Athletic Trainer – Houston Methodist Hospital
Steve Tran MS, LAT, ATC-Athletic Trainer-CCISD Clear Brook HS
Lorrie Capetillo-Reeves, LAT, ATC- Athletic Trainer-CCISD Clear Creek HS
Tamantha Wofford-Ezeji, LAT, ATC- Athletic Trainer- CCISD Clear Falls HS
Chris Gleeson, LAT- Athletic Trainer- CCISD Clear Lake HS
Juan Longoria, LAT - Athletic Trainer- CCISD Clear Springs HS

Recovery of Concussed Student-Athlete: Return-to-Learn

Due to the complexity of concussion, it is important to recognize that no two concussions are the same and no two student-athletes will have the same collection of symptoms. Because of this, recovery also varies from person to person and is why time frames for return-to-sport/learn will be individualized. Concussions can generate changes in short-term memory, cognitive processing speed, and executive function that make learning difficult⁴. With this understanding, each student-athlete will be treated according to their individual symptoms. Treatment of concussion requires rest, both physical and cognitive, and the return-to-learn process calls for the transition of the student-athlete back to the classroom following concussion. As with return-to-sport, the injured student-athlete is not to attend class or participate in classroom activity on the same day as the concussion. Following the injury, the student-athlete will be evaluated by their physician of choice, but preferable one that

specializes in concussion and academic accommodations may be recommended. Re-evaluation will take place if and when symptoms worsen with academic challenges.

Although many student-athletes recover from concussion without or with only short-term academic accommodations, all involved parties will be prepared to provide additional academic support if deemed necessary; accommodations and adjustments should be planned for up to 2 weeks. Student-athletes with persisting symptoms will be provided an individualized return-to-learn plan based on recommendations from the treating physician that will allow for symptom-limited learning activities. Adjustments and accommodations of the return-to-learn plan will be based on patient-specific symptoms, symptom severity, academic demands, and pre-existing conditions such as attention deficit/hyperactivity disorder as determined by the treating physician.^{1,4}

If the school employs an athletic trainer, they will communicate with the school counselor, treating physician, and the student-athlete’s assigned academic advisor as to the nature of a student-athlete’s diagnosed concussion, individualized initial plan for return to classroom/studying as tolerated and return-to-learn progression. Any academic accommodations or adjustments, including modifying class attendance of the student-athlete, will be communicated to all involved parties via physician note. If no athletic trainer the coach of the athlete will communicate this information. It should be noted that the ***stages during return to learn can take a few days to complete, compared to return to sport*** where often a stage only takes one day.

Recovery of Concussed Student- Athlete: Return-to-Learn Continued

The protocol below serves as a sample return-to-learn strategy, following the initial 24-hour period of rest:

Step	Aim	Activity (Suggested)	Goal
1	Begin cognitive activities, as tolerated	Short/light cognitive activities. May start with 5-15 minutes of cognitive activities such as reading.	Gradual return to typical activities without symptom provocation.
2	Cognitive activities outside of the classroom	Homework and reading for short periods (20-30 minutes) with breaks (10-15 minutes) in between.	Increase tolerance to cognitive activities.
3	Gradual re-introduction to classroom	Partial class attendance or with frequent breaks during the day.	Increase academic activities.
4	Full return to normal class schedule	Full class attendance, catch up on postponed assignments, exams still postponed.	Increase academic activities, catch up to peers on academic assignments.
5	Full return to learn	Full class attendance, assignments completed as originally scheduled, exams made-up.	Unrestricted academic activities

UNRESTRICTED RETURN-TO-SPORT SHOULD NOT OCCUR PRIOR TO UNRESTRICTED RETURN-TO-LEARN

Return-to-Sport of an Athlete

A student-athlete that is removed from an athletic practice or competition will not be permitted to practice or compete again until the student-athlete has been evaluated and cleared to begin the school districts return-to-sport protocol through a written statement by their choice physician. The student-athlete 's parent or guardian and student-athlete will have to return the physician's statement and complete a consent form (**Section 6 Appendix B – UIL Concussion Management Protocol Return to Play Form**) indicating that they have been informed and consent to the policies established under the return-to-sport concussion protocol; understands the risks associated with the student-athlete's returning to sport and will comply with any ongoing requirements outlined by the concussion policy; consented to the physician's disclosure of health information that was related to the concussion treatments; and understands the district or school's immunity from liability provisions.

1. Student-athlete must show no signs, report no symptoms and provide a written statement from their chosen physician before the return to sport protocol begins.
2. The return to sport may only be done under the supervision of an athletic trainer or coach.
 - a. Only one step can be completed per 24-hour time period.
 - b. The student-athlete must be symptom-free (or no change in symptoms) before progressing to the next step.
3. The student-athlete must complete the RTS documentation form (symptom questionnaire) after each step of the RTS protocol.
 - a. The student-athlete must initial each time they complete the RTS documentation.
 - b. Forward completed RTP documentation to the student-athlete's treating physician.
4. Once the RTS has been completed the treating physician must provide a written statement to the parent and athletic trainer indicating that, in the physician's professional judgment, it is safe for the student-athlete to return to sport.
5. Student-athlete and the parent/guardian have signed the form (Appendix B) acknowledging the completion of the return to sport guidelines which includes understanding the risks associated with the student-athlete's return to sport.
6. Athletes that have a history of multiple concussions or that have persistent symptoms or indicating cognitive difficulties following concussion will be referred for neurocognitive assessment with a concussion specialist.

The athlete must show no signs of concussion or have post-concussion symptoms without medication that was used since concussion before a return to sport protocol begins.

The athlete will progress only one stage each day.

Post-Concussion Return-to-Sport Protocol – Contact Sports

The return to sport may only be done under the supervision of an athletic trainer or team coach.

Step	MHR	Duration	Description
1	50-60%	15-20 min	Light aerobic exercise with no resistance training (e.g. walking, stationary bike, and hand bike low intensity setting)
2	60-70%	20-25 min	Moderate aerobic activity with resistance training (e.g. running, light weights – No squat, dead lift or bench press)
3	70-80%	25-30 min	High intensity sport specific activity and non-contact training drills. Heavy exertion.
4		Full Practice (non-contact)	Full non-contact practice with supervised light contact activities at the end of practice. (e.g. 10-15 controlled headers in soccer, football sleds 15-20 reps)
5		Full Practice	Full contact practice
6		Full Return	Return to full participation (pending physician clearance)

MHR (Maximum Heart Rate) = 220 – Athlete’s age.

The MHR percentages for each step serve as guidelines only.

Please Note:

If concussive symptoms occur or worsen during or after activity, the athlete should stop all activity until symptom free for 24 hours. Athlete may resume with phase in which they were previously symptom free.

The MHR percentages can be adjusted by the athletic trainer or treating physician based upon the individual student-athlete’s sport and level of fitness and other variables.

Please note, if a physician note is received that requires the athlete to be in a stage longer than one day that must be followed.

For schools with a licensed athletic trainer(s) supervising the return to sport: Return to sport may begin at Step 2 if the athlete has completed the equivalent of Step 1 (minimum of 20 minutes of cardio at 50-60% of MHR) if no symptom changes during and after exercise for treatment.

Post-Concussion Return-to-Sport Protocol Non-Contact Sports

The return to sport may only be done under the supervision of an athletic trainer or team coach.

Step	MHR	Duration	Description
1	50-60%	15-20 min	Light aerobic exercise with no resistance training (e.g. walking, stationary bike, and hand bike low intensity setting)
2	60-70%	20-25 min	Moderate aerobic activity with resistance training (e.g. running, light weights – No squat, dead lift or bench press)
3	70-80%	25-30 min	High intensity sport specific activity and non-contact training drills. Heavy exertion.
4		Full Practice	unrestricted practice
5		Full Return	Return to full participation (pending physician clearance)

MHR (Maximum Heart Rate) = 220 – Athlete’s age.

The MHR percentages for each step serve as guidelines only.

Please Note:

If concussive symptoms occur or worsen during or after activity, the athlete should stop all activity until symptom free for 24 hours. Athlete may resume with phase in which they were previously symptom free.

The MHR percentages can be adjusted by the athletic trainer or treating physician based upon the individual student-athlete’s sport and level of fitness and other variables.

Please note, if a physician note is received that requires the athlete to be in a stage longer than one day that must be followed.

For schools with a licensed athletic trainer(s) supervising the return to sport: Return to sport may begin at Step 2 if the athlete has completed the equivalent of Step 1 (minimum of 20 minutes of cardio at 50-60% of MHR) if no symptom changes during and after exercise for treatment.

Prevention Strategies

Helmets, headgear, and mouth guards do not prevent concussions, but are recommended to prevent serious life-threatening injuries such as skull fractures, facial fractures as well as dental injuries.

Last updated 1/2023

1. Insist that safety comes first.
2. Incorporate neck/upper back strengthening into workouts.
3. Teach athletes the dangers of playing with a concussion.
4. All headgear must be NOCSAE certified.
5. Make sure the headgear fits the individual.
6. For all sports that require headgear, a coach or appropriate designate should check headgear before use to make sure air bladders work and are appropriately filled. Padding should be checked to make sure they are in proper working condition.
7. Make sure athletes wear the right protective equipment for their activity (such as helmets, padding and mouth guards).

INFORMATION DISCLOSURE

The Family Educational Right to Privacy Act Of 1974 (FERPA) is a federal law that governs the release of a student-athlete's education records, including personal identifiable information (name, address, social security number, etc.) from those records. Medical information is considered a part of a student-athlete education record. Also, the Health Insurance Portability and Accounting Act of 1996 (HIPAA) allows the disclosure of information from treating physicians.

This authorization (Appendix B) permits the licensed health professionals working with ((insert district name)) ISD to obtain and disclose information concerning medical status, medical condition, injuries, prognosis, diagnosis, and related personal identifiable health information. This information includes injuries or illnesses relevant to past, present, or future participation in athletics. I understand that I may revoke this authorization at any time by providing written notification.

IMMUNITY PROVISION

By signing the UIL Return to Play documentation form (Appendix B) I do hereby agree to indemnify and save harmless the Clear Creek ISD and any school representative from any claim by any person whomsoever on account of such care and treatment of said student-athlete. Furthermore, the student-athlete / parent/guardian understands this policy does not:

1. Waive any immunity from liability of a school district or open-enrollment charter school or of district of charter school officers or employees;
 2. Create any liability for a cause of action against a school district or open-enrollment charter school or against district or charter school officers or employees;
 3. Waive any immunity from liability under Section 74.151, Civil Practice and Remedies Code;
 4. Create any liability for a member of a concussion oversight team arising from the injury or death of a student-athlete participating in an interscholastic athletics practice or competition, based only on service on the concussion oversight team.
1. McCrory P, et al. Consensus statement on concussion in sport-the 5th international conference on concussion in sport held in Berlin, October 2016. Br J Sports Med. 2017;0:l-10.
 2. Leddy J, Baker JG, Haider MN, Hinds A, Willer B. A physiological approach to prolonged recovery from sport related concussion. J Athl Train. 2017;52(3):299-308.

3. Broglio SP, et al. National athletic trainers' association position statement: management of sport concussion. J Athl Train. 2014;49(2):245-265.
4. Harmon KG, et al. American Medical Society for sports medicine position statement on concussion sport. Br J Sports Med. 2019;53: 213-225.
5. Echemendia RJ, et al. The sport concussion assessment tool 5th edition (scats). Br J Sports Med. 2017;0:1-3.
6. Kontos AP, Deitrick JM, Collins MW, Mucha A. Review of vestibular and oculomotor screening and concussion rehabilitation. J Athl Train. 2017; 52(3): 256-261.
7. Mucha A, et al. A brief Vestibular/Ocular Motor Screening (VOMS) assessment to evaluate concussions. Am J Sports Med. 2014;42(10): 2479-2486.