
# Connecticut Technical Education and Career System

# Athletic Medical Emergency Action Plan

2024-2025

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**Connecticut Technical Education and Career System**

**Athletic Medical Emergency Action Plan**

## Introduction

Connecticut Technical Education and Career System (CTECS) has a written athletic medical emergency plan that should be followed in the event of medical emergencies. All coaches and advisors should be familiar with this document and their roles and responsibilities in an emergency. The athletic population within secondary schools, more commonly known as high school, lead the nation in athletic-related deaths. Injuries to athletes are normally non-life threatening and will not compromise the affected body area. However, many injuries will occur without warning, and catastrophic injuries are very serious to an athlete's well-being. When a catastrophic injury occurs, athletic personnel must be able to properly care for the injured athlete along with other trained medical professionals. The following *Event Emergency Action Plan* will cover implementation of how to handle a variety of emergencies, equipment available, communication, and transportation. While the primary focus is on athletic events, *all protocols should be adhered to for after-hours school functions as well.*

Any questions should be directed to the head athletic trainer (or in their absence the Athletic Director, School Nurse, and School Administrator).

For non-athletic events, please refer to the School Nurse, an Administrator, or SRO.

For any event on the campus of CTECS Technical High Schools, adult supervisors should have a walkie-talkie; these are located at the security desk in the atrium.

## Emergency Phone Numbers

1. 9-1-1 (school phone: 5-9-1-1)

## Chain of Command for Medical Emergencies:

1. Head Athletic Trainer
2. Staff with medical certification (EMR, EMT-B, EMT-P)
3. EMS staff from ambulance
4. Additional personnel
    a. AD, administrator, site coordinator, coach, etc.

## Personnel

An **emergency** is the need for Emergency Medical Services (EMS) to give further medical attention and/or transport an athlete to the hospital. Generally, emergency care will be rendered by a certified athletic trainer. However, there may be other medical professionals at a school-sponsored event who are qualified to assist in providing acute care (nurses, coaches, physicians, EMT-B/P). In the event the athletic trainer is not at a sporting event, other qualified individuals will render care.

## Equipment

Each team has a medical kit that is stocked before the start of the respective sports season. The responsibility lies within the coach to coordinate with either the head athletic trainer or athletic director to secure the kit and return the same kit at the end of the season. Additional equipment needed at sporting events is decided and coordinated by the head athletic trainer/athletic director. The following equipment is available during athletic events

1. Spine equipment: ambulance (football games)
2. Splints: SAM splint in AT kit
3. AED: in white box outside the basketball gym in the front lobby,
4. Ice: available in AT room with bags on top of the ice machine
5. Wheelchair in nurse's office

## Communication

Access to a telephone or other means of communication should be available to all at each sporting event. The communication system relies on radios for various events with cell phone communication taking priority. All coaches should have the ability to contact the head athletic trainer as well as emergency personnel. Follow the chain of command during every incident requiring medical care and listen to any instructions given by a person higher on the chain.

## Activation of Emergency Medical Services (EMS)

In the event of an emergency occurring to an athlete, the head athletic trainer or a member of the coaching staff (if AT is not immediately present), has the direct duty of calling 9-1-1; from a school phone, dial 9-9-1-1. The head athletic trainer has the responsibility of always carrying a cell phone regardless of the situation.

Situations when 9-1-1 should be called include, but are not limited to:

- An athlete is not breathing
- An athlete loses consciousness
- It is suspected that an athlete may have a spinal injury
- An athlete has a closed or open fracture (bone has punctured the skin)

- Severe heat exhaustion or suspected heat stroke (heat-related illness)
- Severe hypothermia (heat-related illness)
- Severe bleeding that cannot be stopped
- An athlete has entered shock (hypoperfusion) for any reason
    - Defined as a critical condition caused by a sudden drop in blood flow throughout the body
    - Types: cardiogenic (heart abnormalities), hypovolemic (too little blood volume), anaphylactic (allergies), septic (infections), and neurogenic (damage to nervous system)

*For all medical situations, the school principal must be notified immediately.*

**Transportation of Sick/Injured**

The emergency plan requires transportation of the sick and injured. The head athletic trainer and coaches should know that an ambulance may be needed immediately for an injury. Based upon the severity of the injury, the type of ambulance needed should be considered. The ambulance summoned can either be BLS (basic life support) for non-life threatening injuries, or ALS (advanced life support) for serious injuries requiring rapid transport. A BLS ambulance can be upgraded to an ALS ambulance by re-dialing 9-1-1 and informing the dispatch that a paramedic is now needed as well. An ALS ambulance crew has a paramedic(s) with a higher scope of training, allowing for him/her to provide more intensive care based upon the nature of the injury.

When calling for an ambulance, it is imperative to give every piece of information available:

- a description of what is taking place,
- approximate age and gender of the injured
- sport,
- the field/building of the event
- and how the ambulance can most easily access the injured party.

When a parent/guardian is not present at the event, a coach or assistant coach should travel to the hospital with the athlete. However, if he/she is the only adult with the team, this will not be feasible. The principal and athletic director must be notified of any injuries resulting in medical transportation.

**Emergency Action Plan Responsibilities of Coaches/Advisors**

1. It is the **responsibility of ALL coaches and advisors to meet with the school nurse** to review medical files and receive any training related to specific athletes/participants. This meeting should occur before any practices have taken place, or as soon as possible once the season begins. This meeting may include:
    a. Diabetes training
    b. Epi-pen training
    c. Glucagon training
    d. Learning which participants have heart conditions
    e. Learning which participants have already had a head injury/concussion
    f. Any other pertinent information the nurse deems necessary.

2. It is the responsibility of the **head coach/advisor** to educate and practice this emergency action plan with participants at least one time at the beginning of each season.
    a. It is advised that the following scenarios be practiced:
        i. Loss of consciousness (head injury)
        ii. Cardiac emergency (need for the AED)
        iii. Heat illness (cooling an athlete)
        iv. Back/neck injury (immobile athlete)
        v. Bus accident with various injuries
3. A medical kit must be present with each team during all practices and games, including away matches. It is the responsibility of the head coach to restock the medical kit whenever needed (check weekly).

**Bus Travel —Away Contest Protocols/Field Trips**

- Prior to ALL departures for away trips, the coach or bus driver needs to document which seats are occupied by which riders (students and coaches). A seating chart is located in each STV. If using a yellow bus, the coach has the responsibility of creating a seating chart.
- One certified coach/advisor is required to ride the bus to all away matches or trips.
- Participants should not be driven to or from an away athletic contest/event unless cleared in writing by the athletic director/administrator at least 24 hours in advance. The principal or his/her designee must be notified.
    - Once cleared, any participant that does not take the return bus home must be signed out (by the parent/guardian or designee picking the participant up) with the head coach prior to departing the away location. Participants will only be released to parents/guardians or immediate family members (sisters, brothers or grandparents) and that must be stated in their clearance note to the athletic director and coach.
- In the event of a bus accident:
    - Follow the instructions of the driver, unless the driver is injured and incapacitated.
    - The adult on the bus should call EMS.
    - Have the participants remain in their seats until instructed to move if it is safe to do so.
    - If participants need to be removed from the vehicle for their safety, keep them together and out of harm's way, as far from the side of the road as possible.
    - Participants should not make phone calls or utilize their cell phones during this time.
    - Once EMS is dispatched to the scene, call an administrator and the athletic director immediately.
    - The STV accident protocols must be followed. It is the responsibility of the driver to be familiar with **all** reporting procedures.

**After School Building Level Emergencies**

- **Fire Alarm**
    - All participants should evacuate the building and assemble in the field or student parking lot (depending on location of activity); attendance should be taken and documented. First responders should be made aware of any participants who are unaccounted for.
- **Lockdown**
    - All participants should shelter in the closest safe location, lock the door. No one should use cell phones.  Refer to the *CTECS Tech School Security and Safety Plan Summary* for additional information.
    - **Inside threats for outside activities**: In the event of a lockdown in the school, coaches and athletes should proceed off campus to Platt High School. Once safely inside the building, school personnel should be contacted.

# CTECS Technical High School Athletic Training Policy and Procedure on Automated External Defibrillation (AED) and Cardiopulmonary Resuscitation

The leading cause of death in young athletes is, SCA, sudden cardiac arrest. The main reason for SCA is abnormalities in the structural make-up of the heart such as, hypertrophic cardiomyopathy, or abnormalities in the coronary arteries. Hypertrophic cardiomyopathy (HCM) is a genetically inherited heart condition, causing the heart muscle to enlarge, or thicken, resulting in reduced blood flow, and increased strain on the heart. The most common place in the heart to find HCM is within the septum, or middle of the heart, causing the chambers of the heart to be smaller than normal, leading to the lungs and body receiving inadequate blood supply. Another common cause of SCA is, commotio cordis, resulting from blunt force trauma to the left chest wall (due to the anatomical orientation of the heart). Victims of commotio cordis are commonly adolescent males playing baseball or lacrosse. In the event an athlete becomes unconscious due to commotio cordis, resuscitation **needs** to begin within one minute.

**AED and CPR**

If an athlete collapses for any reason, and becomes unresponsive, sudden cardiac arrest should be immediately suspected unless a mechanism to cause collapse was seen. In addition, SCA can sometimes be mistaken for seizure-type activity known as myoclonic jerking. Early access to an AED can stop potentially fatal heart arrhythmias, saving the athlete's life. However, certain heart arrhythmias, known as asystole, exist and pulseless electrical activity; an AED will not shock the victim. In such a case, high-quality CPR is the best treatment.

When providing CPR for an unconscious athlete, do not stop compressions for more than 10-15 seconds, unless the AED is analyzing the heart rhythm, preparing to shock, delivering a shock, or the compression cycle has ended, calling for ventilations. A CPR cycle ratio is 30 compressions: 2 ventilations/breaths at a rate of 100 compressions per minute. Compression depths are as follows, adult (puberty and older) - at least 2 inches, child (1 to puberty) - about 2 inches, and infant (newborn to 1) - about 1.5 unconscious inches. During breath administration, avoid mouth-to-mouth and stress the use of a CPR mask. Compression-only CPR is not as effective as CPR with rescue-breaths, but does provide life-saving measures.

**Procedure**

In order to use an AED, the athlete must first be unconscious. If the athlete is conscious, **DO NOT USE AN AED**, as it will cause further harm. In the event an AED needs to be used, ensure the athlete, or patient is not on a metal bleacher, in standing water, or wet. The steps for AED use are listed below:

1. Look, listen, and feel for a heart beat, breathing, and to determine the patient is unconscious
2. Call 9-1-1 or directly point to someone to call if you are rendering care and obtain the AED.
3. Call the head athletic trainer if he is not already at the field
4. Once the victim is determined to be unconscious, ensure the surface is dry and non-metal
5. Open the AED case to access the pads on the back side of the device
6. Attach the pads as shown (pad placement is on the pad itself)
7. Listen to the AED for voice commands
8. Follow all voice commands
9. If no shock is needed, check the patient for signs of life, and provide care as needed

10. In the event an AED is used/not used, a debriefing of the event can be held upon request to answer any questions or simply talk about what happened
11. Any damage to an AED must be reported to the head athletic trainer or AD ASAP
12. Each AED should be checked daily to ensure the battery is working. If the light on the AED does not flash, the battery needs to be changed

High-risk sports such as football and wrestling should always have an AED at the field/gym during sporting events, as well as a head athletic trainer present. However, during the times when an head athletic trainer is not present, or is assisting another player with an injury, the coaches will be required to administer emergency acute care to SCA victims until the head athletic trainer is available to assist. The same steps should be followed as listed above to ensure proper care is being delivered to the athlete.

As stated earlier, AED locations are: in white box outside the basketball gym in/near the front lobby, outside the nurse's office, and in the field house during outdoor seasons. Coaches and Athletic Directors should confirm these locations at least monthly.

# CTECS Technical High School Athletic Training Policy and Procedure on Asthma Management

Asthma is a common condition characterized by chronic inflammation of the airways and bronchospasm. Multiple factors can trigger an asthma attack such as, pollen, dust mites, animal dander, smoke, and exposure to cold or exercise. If not treated in a timely fashion, a severe asthma attack can take place causing irreversible airway obstruction, eventually leading to death. Athletes commonly demonstrate more asthmatic symptoms due to constant and repeated exposure to the outside environment. Thus, characterizing an athlete's asthma condition as, exercise-induced bronchospasm (EIB). Under normal conditions, the bronchospasm will subside after 20-30 minutes, and will peak in intensity around the 10-minute mark.

**Signs and Symptoms**

Signs and symptoms of asthma include: chest tightness, coughing, prolonged shortness of breath, wheezing, decrease in physical activity, trouble talking, fatigue with talking, use of accessory muscles to assist in breathing, and underperforming in sport-related tasks. Below are questions used to determine if an athlete is experiencing exercise-induced bronchospasm:

1. Does the athlete experience trouble breathing accompanied by coughing, wheezing, shortness of breath, or chest tightness?
2. Does the athlete experience coughing, wheezing, shortness of breath, or chest tightness at night?
3. Does the athlete experience shortness of breath, wheezing, chest tightness, or coughing when exposed to pollutants, or allergens?
4. Does the athlete experience during exercise, shortness of breath, coughing, wheezing, or chest tightness?
5. Has the athlete been given/prescribed any type of pharmacologic treatments in the past for asthma, or allergic rhinitis.
    a. If yes, was the treatment successful?

If an athlete is experiencing an asthma attack resulting in chest tightness, a respiratory rate greater than 25 times per minute, nasal flaring, use of abdominal muscles to breathe, and/or inability to speak in full sentences should be sent to an emergency facility or to a physician for further treatment. An athlete who has a prescribed inhaler should alert the head athletic trainer and he/she should have easy access to the inhaler during sport-related activities.

**Medication**

The type of medication prescribed to an athlete will vary, and is either a quick relief medication or long-term medication. Many common quick relief medications prescribed are: Proventil, Ventolin (albuterol), Alupent (metaproterenol), and Maxair (pirbuterol). All the previously listed medications are known as short-acting beta-agonists, which relax smooth muscles within the airway to stop asthma-related symptoms. On the other hand, long-term medications are utilized to assist in controlling asthma-related symptoms throughout the day. Intal (cromolyn sodium) and Tilade (nedocromil) are the most commonly prescribed long-term medications. Both medications work to prevent swelling of the airway, and control bronchospasm. Prior to sports, both medications can be used to prevent an asthma attack, but many times, an athlete will have a quick relief medication.

**Procedure**

When an athlete needs to use an inhaled medication for an asthma attack, it is very important to ensure the full dose of medication is being administered. The device used is known as a metered-dose inhaler (MDI). It is common for an athlete to experience an increase in heart rate after

administration of the medication and is not typically a cause for requesting additional resources such as an ambulance. A spacer may be attached to the athlete's inhaler to allow for the medication to be held allowing for the medication to be inhaled using two breaths. Thus, preventing the medication from not reaching the athlete's lungs and being stuck to the tongue, or back of the throat. When using an MDI, the following steps are used to assist in administering the medication:

1. Check 5 rights: right patient, right medication, right dosage, right route of administration, and right time (within the expiration date)
2. Hold upright, and remove the cap from the MDI
3. Shake the inhaler well
4. Instruct the athlete to breathe out completely
5. Hold the MDI 1-2 inches away from the athlete's mouth, or put the spacer in his/her mouth
6. Instruct the athlete to begin to inhale at the same time as the inhaler is pressed down to release the medication
7. Instruct the athlete in inhale for 3-5 seconds
8. Instruct the athlete to hold his/her breath for 10 seconds to allow for the medication to be absorbed
9. Repeat MDI puffs as prescribed, and wait at least 1 minute between puffs
10. Monitor the athlete and ensure all asthma-related symptoms have subsided before allowing participation in sport

# CTECS Technical High School Athletic Training Policy and Procedure on Epinephrine (Epi-Pen) Auto-Injector

An Epi-Pen delivers a medication known as, epinephrine, which increases heart rate, relaxes the smooth muscle within the bronchioles to relieve wheezing/difficulty breathing, and constricts blood vessels to assist blood pressure to combat an allergic reaction (anaphylaxis). The normal time epinephrine will remain effective for is around 10-20 minutes. During the time span, additional resources such as an ambulance should be summoned to take the athlete to an emergency care facility.

**Medication**

With an Epi-Pen Auto-injector, the device is a single-use disposable delivery mechanism commonly administered to the outer thigh. Within the device is a spring-activated needle which is triggered once the epi-pen is firmly pressed against the skin. Each epi-pen carries a single dose of medication and the device cannot be reused once the medication has been administered. In the case of a severe allergic reaction, a second epi-pen may need to be administered, but 5 minutes must pass before the second dose can be given. For adults, the epinephrine dose will be 0.3 mg of 1:1000 solution. When prescribing an epi-pen, the dosage is based upon weight. An adult is labeled as any individual over 66 pounds. Children are labeled as being between 33-65 pounds and the dosage is half of what an adult receives.

**Procedure**

An allergic reaction can be caused by multiple factors. An athlete may have an allergy to food, pollen, drugs, or insect bites/stings. It is imperative to do everything to prevent an allergic reaction from occurring however, in the event a reaction does occur, the following steps should be followed:

1. Maintain an open airway
2. Suction any fluids from the airway
3. Always be ready to assist with ventilation
4. Activate EMS
5. Administer the epi-pen to the athlete if he/she is unable to
6. Athlete must be transported to the ER

**To administer an epi-pen, follow the listed steps below:**

1. Check 5 rights: right patient, right dose, right medication, right route of administration, and right time (within the expiration date)
    a. If the epi-pen is expired, the window showing the epinephrine will be discolored
2. Prep the application site (outer thigh) with rubbing alcohol or an alcohol wipe
3. Remove the safety cap from the end of the epi-pen
4. Place the needle end of the epi-pen no more than 3 inches away from the outer thigh
5. Firmly press the epi-pen against the outer thigh until a “click” is heard
    a. When the click is heard, the needle mechanism has been triggered
6. Hold the epi-pen against the skin for 10 seconds
7. Remove the epi-pen and massage the area
8. Place the used epi-pen into a sharps biohazard container (give to ambulance crew)
    **a. DO NOT BEND THE NEEDLE IN ANY WAY**
9. **RECORD EVERYTHING**

**Considerations**

When administering an epi-pen, it is important to confirm the athlete is exhibiting signs and symptoms of an allergic reaction, respiratory distress, and/or shock (hypoperfusion). Shock can be exhibited with an allergic reaction due to an increased heart rate causing an unsafe drop in blood pressure (hypoperfusion). As stated earlier, by constricting the blood vessels, epinephrine can reverse the unsafe drop in blood pressure leading to shock. The only contraindication for use of an epi-pen results from the age of the patient. With an elderly patient or an athlete with hypertension or heart disease, the person caring for the individual must keep a close eye on him/her.

Reassess the athlete every 5 or 10 minutes based on the severity of the reaction. If the athlete had a less severe reaction and is slowly improving, reassessing every 10 minutes may be appropriate. Remember the effective time of epinephrine, and the side effects of administering the drug: headache, dizziness, increased heart rate, anxiousness, chest pain, pale skin, and excitability. If the athlete's condition is slowly deteriorating, ensure EMS has been activated and provide care as needed.

# CTECS Technical High School Athletic Training Policy and Procedure on Exertional Heat Illness Management

Exertional heat illnesses can occur with extreme temperatures as well as normal weather conditions. An athlete suffering from exertional heat illness may have one of the following illnesses: exercise-associated muscle cramps, heat syncope, heat exhaustion, exertional heat injury, and/or exertional heat stroke. All of the previously listed heat illnesses place an athlete's body in a state of hyperthermia, or increased body temperature. Compared to hypothermia which is an abnormally decreased body temperature. Many athletes are susceptible to heat-related illness during the pre-season weeks at the end of summer, and the late spring season. Typically, an acclimatization period is best to properly prepare athletes for hotter temperatures. Practices and sporting event times can be altered based on the day, heat index, and humidity to keep the athletes safe. Generally, the wet-bulb globe temperature is used to determine the safety and sporting event modification for the day. If a wet-bulb globe temperature is unable to be recorded, close monitoring through cell phone weather apps will be needed.

**Wet-Bulb Globe Temperature Guidelines**

- Under 82.0°F (27.8°C) – Normal activities with 3 breaks lasting a minimum of 3 minutes each.
- 82.0°F-86.9°F (27.8°C-30.5°C) – Use discretion for intense and/prolonged exercise. Be mindful of at-risk individuals. Provide at least 3 breaks lasting a minimum of 4 minutes.
- 87.0°F-89.9°F (30.5°C-32.2°C) – Maximum practice time is restricted to no more than 2 hours. Football players are restricted to helmets, shoulder pads, and shorts. During conditioning, all protective equipment must be removed. Provide at least 4 breaks lasting a minimum of 4 minutes.
- 90.0°F-92.0°F (32.2°C-33.3°C) – Maximum practice is restricted to no more than 1 hour. No conditioning activities can be performed, and protective equipment cannot be worn during practice. At least 20 minutes must be allotted for a break during practice.
- Over 92.1°F (33.4°C) – No outdoor workouts, exercise is canceled, and practices can be delayed until a later time with the WBGT has decreased.
- Heat index and humidity readings should be taken at least 30 minutes prior to practice or games. A psychrometer reading is taken by standing in the middle of the playing field to obtain the most accurate reading.
- A natural grass field will not exhibit much temperature difference than the ambient temperature however, the track surface will retain heat as well as radiate heat when in direct sunlight.
    - **o** A turf field will be 10-20°F hotter than the other fields, placing the teams utilizing turf at a higher risk.

An environment with hot and humid temperatures can predispose an athlete immensely to heat-related illnesses. Heat loss is based upon evaporation, and as an athlete loses the ability to cool through evaporation, risk for heat-related illness increases. By the time an athlete has heat stroke, he/she has lost the ability to utilize evaporative cooling completely. In extreme environments, humidity may be high along with heat index, which reduces an athlete's ability to utilize evaporative cooling leading to an unsafe rise in core body temperature. In addition to the previous factors, air motion is another environmental factor causing an increase or decrease in body temperature. Clothing plays a major role in an athlete's ability to regulate body temperature. By wearing protective gear, or excessive clothing, the body cannot properly regulate cooling, and increases the ability to absorb radiant heat. As stated earlier, to assist in preparing an athlete, acclimatization provides the best progression into different environments.

To assist in protecting athletes, high heat and humidity days may require athletes to be weighed before and after each session. An athlete cannot lose more than 2% of his/her body mass during a session. However, weigh-ins do not show the hydration state the athlete is in prior to practice; generally, athletes arrive 2% or more hydrated. Athletes will have readily available sources of hydration throughout the day along with designated hydration times during practice or games. Breaks for hydrations will be determined based upon the day's weather conditions. Sodium should be encouraged through drinks or food to assist hydration levels and maintain a level of hydration close to, euhydration, or the state of an optimal level of water within the body as regulated by the brain.

Acclimatization works over a period of 7 to 14 days to gradually adjust an athlete's body to a different environment. By slowly increasing the intensity and duration of practices, an athlete's body becomes more accustomed to the demands of the sport in a specific environment.

1. **Days 1-2:** Single 3-hour practice or one 2-hour and one 1-hour practice in helmets only
    a. If a practice is interrupted by inclement weather or heat restrictions, practice can recommence once conditions are safe, and WILL NOT exceed the 3-hour limit
    b. A 1-hour maximum walk-through is permitted on days 1-5 of the acclimatization period. However, a 3-hour recovery period will be inserted between the practice and walk-through (or vice-versa)
2. **Days 3-4:** Single 3-hour practice or one 2-hour and one 1-hour practice in helmets/shoulder pads
    a. Football only: days 3-5 can have contact with only blocking sleds and tackling dummies
3. **Day 5:** Single 3-hour practice or one 2-hour and one 1-hour practice in full pads
4. **After day 5:** At least 1 day between two-a-day practices, maximum 5-hour total practice time, and walk-throughs are restricted to maximum of 2-hours
    a. If a rest day is given following a two-a-day practice, another two-a-day practice is permitted
    b. Athletes WILL NOT participate in more than 5 total hours of practice
    c. Warm-up, stretching, cool-down, walk-through, conditioning, and weight room are all considered as part of the practice time allotted

Heat-induced illness signs and symptoms vary depending on the illness, but the severity of the signs and symptoms will determine the illness.

### *Exercise-associated Muscle Cramps*

Muscle cramps typically last no longer than 5 minutes and are not severe. However, muscle cramps can inhibit an athlete's ability to perform at a high level, and may take multiple days for soreness to subside.

**Signs and symptoms:** cramping (normally gastrocnemius-soleus, quadriceps, hamstrings, and/or abdominals), dehydration, thirst, and sweating.

**Treatment:** passively stretch the affected muscle(s), drink fluids containing electrolytes, and ensure fluid intake is matching or exceeding fluid output. A full return-to-play assessment should be completed before the athlete is allowed to continue participating.

***Heat Syncope***

In the event an athlete suffers from a syncope episode, it is imperative to ensure breathing, heart rate, and responsiveness to rule out a sudden cardiac event. Body temperature is typically no greater than 102.2°F.

**Signs and symptoms:** short fainting episodes usually seen with dizziness, paleness, sweating, and a decreased heart rate.

**Treatment:** remove the athlete from the playing area to a shaded, cool spot, provide rehydration, and monitor vital signs. If the athlete's condition worsens, or multiple syncope episodes occur, summon EMS to assist/transport to the hospital.

***Exertional Heat Exhaustion***

A full assessment of the athlete's cognitive functioning should be performed to rule in/rule out the potential for exertional heat stroke.

**Signs and symptoms:** extreme fatigue, syncope, minor changes to cognitive functioning, weakness, dizziness, headache, vomiting, nausea, lightheadedness, low blood pressure, and/or impaired muscle coordination. When assessing core body temperature, the athlete's temperature should be no more than 105°F. If the temperature exceeds 105°F, the athlete is about to exhibit exertional heat stroke, or has reached the point already and is not showing definitive signs/symptoms yet.

**Treatment:** remove any and all excess clothing or protective padding. By removing excessive articles of clothing, the evaporative cooling surface is increased, hopefully allowing for core body temperature to drop. In addition, the athlete should be moved to a shaded area, and cooled with fans or ice towels around the neck as well as in the armpit. Venous return can be assisted by placing the athlete in a supine position with both legs elevated above heart level. If the athlete's condition worsens, EMS should be activated to transport to a hospital.

***Exertional Heat Stroke***

Heat stroke is the most dangerous of all heat-related illnesses. By the time an athlete begins to suffer from heat stroke, core body temperature is at or above 105.5°, and serious damage to the body can occur. When treating exertional heat stroke, the key is to consider time above critical temperature, not the highest temperature reached. To obtain core body temperature, the preferred/optimal method is via rectal thermometry. Other methods have been proven to be ineffective and inaccurate to adequately treat athletes. If rectal thermometry is unavailable, cold water immersion should last for 15 minutes.

**Signs and symptoms:** dehydration, red/flushed skin, lack of sweating, severe CNS dysfunction, lack of coordination, dizziness, headache, hypotension, hyperventilation, and possible collapse.

**Treatment:** should take place as soon as heat stroke is suspected. Cold water immersion is the preferred method, involving a cold tub, or container allowing for the athlete to be submerged up to his/her neck. The water should be anywhere from 39°-59°F, and a layer of ice should remain at the water's surface throughout the treatment with continuous stirring of the water. The athlete is allowed to be removed from water when core body temperature is at or below 102°F. By submerging the body into extremely cold water, core body temperature drops about 1°F every 3 minutes in ideal conditions. However, if cold water immersion is not accessible, find a big enough container to place the torso in, and place ice towels on the remainder of the body, along with pouring ice water on the athlete.

**Transportation:** may not be needed if core body temperature drops to a safe level within a timely fashion, core body temperature is not above 104°F for longer than 30 minutes, and a 1 hour asymptomatic period is reached. If medical personnel are not at the sporting event, the initial

treatments should be completed by the coaching staff, and the head athletic trainer will take over treatment once on-location.

**Considerations**

With any heat-related illness, make sure the appropriate precautions are taken to ensure athlete safety. If the head athletic trainer is mandating restrictions on practice, or specific guidelines for how to properly manage practice in the heat, do not deviate from the plan. Moving practice times or game times is a very real possibility with extreme temperatures, and if the question arises for changing times, it is most likely in the best interest of the athletes to do so. If an athlete begins to demonstrate signs and symptoms of a heat-related illness, be sure to alert the head athletic trainer and/or EMS. The rule of “cool first and transport second” should be followed when treating any athlete suspected to have exertional heat stroke. Additionally, the transient property of the hypothalamus restricts the body’s ability to rebound in temperature following cooling.

# CTECS Technical High School Athletic Training Policy and Procedure on Environmental Cold Injury Management

Similar to heat illnesses, cold injuries can be just as serious. Late fall season and early spring season sports can potentially be exposed to extremely cold weather conditions. In addition to certain aspects of the fall and spring seasons, some athletes may choose to train outside during the winter if the weather permits. At-risk sports are football, baseball, softball, soccer, lacrosse, and track and field. When a cold injury occurs, it is characterized as one of three types: decreased core body temperature (hypothermia), non-freezing injury, or freezing injury. One of the biggest factors when allowing athletes to be outside in cold temperatures is the wind chill. If a team is participating with an outside temperature of 40°F, a 10 MPH wind can make the temperature feel like it is 34°F. Similarly, as the temperature drops, or the wind chill increases, risk for cold injury increases.

**Heat Loss Mechanisms**

Combating outside temperatures can be completed through wearing multiple layers of clothing. Radiation, convection, conduction, and evaporation are all mechanisms which can lower an athlete's core body temperature. Radiation causes heat to be lost directly to the environment. Uncovered skin is most susceptible to lowering core body temperature, normally seen in the face, hands, neck, and head. Convection loses heat through movement of the air and/or water across the skin. Around the body is a thin layer of warmth known as the boundary layer, and when air or water moves across the skin, the boundary layer is removed, and replaced with cold temperatures leading to a loss in heat. The speed of the air moving around the body, and amount of exposed skin can help predict the amount of heat lost through convection. Wind chill is the biggest factor when assessing convection, and can be slowed through extra clothing layers. Conduction causes heat to be lost through direct contact with the cold, whether it is through air, snow, water, or clothing. Changing clothing layers when wet can reduce the amount of heat lost through conduction. Evaporative heat loss accounts for up to 25% of all total heat loss. Part of evaporative heat loss is breathing, and little can be done to prevent moisture loss. Similar to conduction, evaporative cooling can be prevented or slowed through proper clothing, and moisture reduction.

***Hypothermia***

Hypothermia is a common cold injury resulting from a decrease in body temperature after prolonged exposure to the cold. The condition is classified as either mild, moderate, or severe. Mild hypothermia reduces core body temperature from 98.6°F-95°F, moderate hypothermia causes a body temperature of 94°F-90°F, and severe hypothermia lowers body temperature to below 90°F. A detailed assessment is needed to determine the severity of the condition along with body temperature due to every athlete being different, and all athletes will not present with all the signs and symptoms.

**Signs and Symptoms:** Shivering, lethargy, cold skin, impaired motor skill functioning, possible unconsciousness, and impaired mental functioning.

**Treatment:** consists of, removing wet clothing, and applying warm/dry blankets and clothes. The athlete should be moved to a warm area and monitored closely for any adverse changes. Avoid applying friction of any kind when treating hypothermia as it may cause further damage.

***Frostbite/Frostnip***

Frostbite involves freezing of body tissues characterized as either superficial, or deep as well as localized or spread across a general area. Similar to frostbite, frostnip is known as the earliest onset of frostbite. Frostnip occurs from prolonged exposure to the cold with/without wind chill, and will typically affect exposed skin surfaces. The skin may be wet as well causing the condition to

worsen quicker than if the skin was dry. After further exposure, the skin begins to freeze along with subcutaneous (fatty) tissue, and extracellular water. Once the body's tissue has severe frostbite, structures down to tendon, muscle, and bone are affected resulting in possible amputation. The severity of frostbite/frostnip increased based upon vasoconstriction. When body temperature begins to decrease, blood flow is shunted (reduced) to extremities, and increased to keep vital organs functioning properly.

**Signs and Symptoms of frostnip:** redness, pain, and possible numbness/paresthesia.
**Signs and symptoms of frostbite:** consist of redness, edema, extremity stiffness, hardened tissue, numbness, and/or paresthesia.
**Treatment of frostnip:** gradual rewarming, and keeping the affected body part dry.
**Treatment of frostbite:** involves slow rewarming, avoid friction of any kind, and do not allow the tissue to refreeze. For severe frostbite, submerge the affected area in warm water, and gently circulate the water. Keep the affected area immersed for 15-30 minutes or until sensation and color of the skin have improved. Do not allow the tissue to refreeze, and if rewarming cannot happen make sure the affected area is protected from the outside environment. Infection management may be necessary with necrotic (dying) tissue, and/or sloughing (fall off) tissue. Athletes may not reach the point of having severe frostbite, but the risk still exists.

***Chilblain***

Chilblains (CHILL-blayns) are the painful inflammation of small blood vessels in your skin that occur in response to repeated exposure to cold but not freezing air.

**Signs and symptoms:** skin edema, tenderness, itching, and/or pain after prolonged exposure (>60 minutes) to cold, wet conditions. The easiest way to recognize chilblain is to look for an inflammation response to the cold within the hands and feet.

**Treatment:** remove all wet clothing, and dry the area thoroughly, then cover with warm blankets. The rewarming process should be gentle to avoid aggravation of the tissue.

***Immersion Foot (Trench Foot)***

Immersion foot (trench foot) is a condition caused by prolonged exposure to wet, cold environments over the course of 12 hours – several days. Typically seen with military personnel, trench foot can be seen with athletes, but exposure to the outside environment is usually not long enough to cause the condition to occur. **Signs and symptoms:** itching, burning, loss of sensation, edema, pain, and skin discoloration/maceration (breakdown).

**Treatment:** thoroughly dry the affected area, and apply warm packs around the foot.

**Considerations**

Appropriate clothing should be stressed to all athletes when it comes to extreme temperatures. Cold temperatures can be managed easily by increased body temperatures, and wearing clothing to reduce moisture accumulation on the skin. If clothing becomes wet, the article of clothing should be removed, and replaced by dry clothing. An athlete complaining of being too hot with extra layers of clothing should be instructed to leave all clothing on unless the clothing becomes wet. In the event an injury from the cold occurs, be sure to differentiate to properly diagnose, and provide proper treatment.

# CTECS Technical High School Athletic Training Policy and Procedure on Lightning Safety

Lightning is a very dangerous factor associated with thunderstorms. The highest prevalence for thunderstorms is in the late spring and preseason/early fall. Even though New England is not an area with high lightning activity associated with thunderstorms, the danger remains present. If thunder can be heard at all, lightning is close enough to the venue to put everyone involved at-risk.

**Injury From Lightning**

Injury and/or death from lightning can happen one of 6 ways: direct strike, contact, side flash, step voltage, upward leader, or concussively.

**Direct Strike:** least common mechanism for lightning injuries and results from lightning coming in contact with a person without hitting anything else prior. However, a direct strike is normally thought of as the most important factor to prepare for and accounts for only 5% of all injuries.

**Contact Injury:** similar to direct strike, contact injury accounts for a low percentage of all lightning injuries. The injury occurs when a lightning bolt strikes a bleacher, fence, pole, or object a person is touching.

**Upward Leader:** slightly more prevalent than the previous two injury types, occurring when lightning begins at the ground and travels towards the clouds. Upward leaders are still very serious even though it may not start in the clouds. A downward lightning strike may connect to the upward leader to increase the energy produced.

**Side Flash (splash):** accounts for up to 35% of all lightning injuries and is a result of a portion of the energy created from lightning striking an object jumping to a person close-by. A side flash can occur if a person sought refuge in a dugout or under a tree.

**Step Voltage (ground surface arc):** the most prevalent of all lightning-related injuries. Occurs when a person is near where lightning strikes an object and the current produced from the strike jumps to the person. Rather than a side flash, where a portion of the lightning strike jumps directly from the object, step voltage involves the current in the ground. If a person has one foot closer to where the lightning hit, the current will flow up the closer foot and downward through the farther leg. Combined with side flash, the two mechanisms are very dangerous when a large athletic venue with a large amount of people are involved.

**First Aid After Lightning Injuries**

After suffering an injury from lightning, the individual will not have residual electrical charge in his/her body. The real risk in the situation is another lightning injury from the storm. Considering personal safety with the storm overhead is essential prior to considering venturing to the victim. However, the best option when providing treatment for a lightning injury victim is moving the victim to a safer location. A common trend with triaging patients (sorting victims based on injury severity) leads rescuers to treat the living first. With lightning injuries, victims who are unconscious and/or in cardiac arrest **NEED** to be treated first. For unconscious victims in cardiac arrest, treatment is centered around CPR/AED (refer to CPR/AED Policy and Procedure). Follow the EAP for each venue if a lightning injury occurs.

**Emergency Action Plan for Lightning Safety**

When thunder and lightning occur with any storm the flash-to-bang method can be utilized along with a cellphone app to properly determine if athletic events need to be suspended. The flash-to-bang ratio is determined by counting the seconds between seeing lightning and hearing thunder. Once a number is obtained, divide the number by five and the resulting quotient is the number of miles away from the venue the storm is. If the quotient is at six miles or less, a serious

consideration to suspend athletic events should occur. Additionally, the WeatherBug App allows for lightning and storms to be tracked minute-by-minute or mile-by mile. The head athletic trainer has the ability to closely monitor the storm to properly determine when the time is necessary to move athletes into a safe location away from the pending weather. When play is suspended, athletes must move to the nearest form of safe shelter as quickly as possible.

In the event athletic event(s) need to be suspended or canceled, all athletes and coaches are to listen to the direction of the head athletic trainer. The athletic director may be utilized if possible to assist in directing teams into the correct safe location(s).

**ALL ACTIVITIES WILL BE SUSPENDED AND ATHLETES, COACHES, AND ANYONE AFFILIATED DIRECTLY WITH THE TEAMS WILL BE ESCORTED TO THE SCHOOL BUILDING'S NEAREST ENTRANCE.**

Athletic events are allowed to resume once the storm has passed and the head athletic trainer receives a notification from the weather app stating the severe weather has cleared the surrounding area. The time period may be a few minutes or an hour. If the app cannot be utilized, a 30-minutes must pass after seeing lightning and hearing thunder for play to resume. The only people allowed to make the final determination on resuming play are the head athletic trainer.

**Considerations**

Lightning and severe weather are a serious situation with the ability to occur on any day. Lightning injury victims should be based upon who is unconscious and/or in cardiac arrest. Victims who are walking or conscious typically do not get any worse as time progresses. Athletic events should be suspended if a severe storm with lightning is within a six-mile radius of the school. Play can resume after a 30-minute period if the weather bug app is not available to send notification severe weather has left the area. Additionally, the head athletic trainer makes all decisions on athletic events occurring with lightning and how everything is handled.

# CTECS Technical High School Athletic Training Policy and Procedure on Concussion Management

Concussions are one of the most complex and complicated injuries sustained by athletes. Caused by bleeding within the brain tissue, the injury occurs from rapid acceleration and deceleration of the brain from an indirect or direct blow to the skull and are very serious. Athletic trainers work closely with athletes to ensure the proper care is being given and making the right choice with return-to-play decisions. The severity of the concussion determines the amount of care needed to treat the athlete as well as any restrictions he/she needs. When a concussion is sustained, the athlete may or may not lose consciousness. Being hit in the head or suffering trauma to the head without losing consciousness does not rule out the fact the athlete may have a concussion. Sometimes, the terms, “having one’s bell run”, or “having one’s head rattled on a hit” are used to describe what happened during a play, and may mean a concussion has occurred. Sending an athlete back into a game or practice with a concussion can lead to serious brain damage if a second brain injury is sustained. The result is known as second impact syndrome, causing cerebral edema leading to catastrophic deterioration of the brain tissue.

Another concern when treating an athlete with a suspected brain injury is a history of multiple concussions. Even having only one concussion in the past predisposes an athlete to subsequent brain trauma in the future. By properly treating each concussion, the likelihood of another concussion reduces, and each concussion may not be the same as previous ones.

**Signs and Symptoms**

| | | | | |
|---|---|---|---|---|
| **Headache** | **Dizziness** | **Lethargy** | **Fatigue** | **Light sensitivity/noise** |
| **Inhibition of cranial nerve(s)** | **Nausea** | **Vomiting** | **Feeling in a fog** | **Difficulty concentrating** |
| **Difficulty remembering** | **Difficulty concentrating** | **Confusion** | **Ringing in ear(s)** | **Trouble with motor function** |
| **Head pressure** | **Nystagmus** | **Drowsiness** | **Trouble sleeping** | **Irritability** |
| **Difficulty balancing** | **Neck pain** | **Loss of consciousness** | **Altered level of consciousness** | **Difficulty concentrating** |

If an athlete does not present with any signs and symptoms it does not mean he/she is concussion-free. Rating signs and symptoms off a self-reported symptom assessment sheet can be an important part of the assessment process. After reviewing the sheet, the neurological test and examination can be made more effective in diagnosing an athlete properly. Another useful tool is motor function and coordination. After suffering a brain injury, motor function may become abnormal in regards to balance, fine motor control, and/or posture. Balance deficits can be attributed to decreased sensory information from the vestibular (hearing) and visual (sight) components. With some sports, cleats are a common footwear and can alter how well an athlete can balance. However, a concussion will alter balance even with cleats being worn.

**Procedure**

Once a concussion is sustained, the athlete can no longer participate in any sport-related activity. An altered mental status (AMS) may be present and simple questions can be a significant assistance in determining a diagnosis. By performing a short mental-status test, an athletic trainer is

able to alleviate the need for an in-depth cognitive assessment (ability to use a cognitive assessment may be limited). A short question list may consist of: “what is your name?”, “where are we now?”, “what is the score?”, “what day of the week is it?”, and “what time is it?”. The set of questions used is known as the Standardized Assessment of Concussion (SAC), and takes no longer than 5 minutes, but is highly sensitive when diagnosing a concussion immediately after the injury is sustained. After the initial 24-hour period, the SAC begins to lose sensitivity, making it better suited for sideline assessments. Following the sporting event, a more complex assessment can be conducted known as neurocognitive testing. Within a distraction-free environment, the test allows the evaluator to assess an athlete completely, focusing on the aspects of the brain most affected by a concussion: information processing, planning memory, and switching mental set. Aspects of the test consist of, recalling (immediate/delayed) a word list, repeating number-sets, balance/coordination, cranial nerve assessment, and rating of signs and symptoms. Once testing is completed, a thorough diagnosis can be made.

Transportation for an athlete is not always needed, but should be utilized if the athlete was unconscious for more than 1 minute, mental status begins to worsen after the injury occurs, or signs and symptoms of a more serious brain injury are present (subdural hematoma, subarachnoid hematoma).

**Management**

Management of a concussion depends on the athlete as no two people or injuries are the same. A daily examination of the athlete needs to be completed to ensure the recovery process is progressing as needed as well as, if anything has changed with the athlete over the past 24-hours. The biggest key factor in treating a concussion is rest. The athlete will be removed from all physical activity until a physician’s note is received as well as an asymptomatic period of 24-hours. Having the athlete rest is not only from physical activity, the athlete must be restricted from mental stressors such as academics, phone screens, television, and computers. Until the athlete is able to demonstrate being asymptomatic, and is able to demonstrate the ability to pass neurocognitive testing via SCAT3/VOMS, the process to return-to-play cannot begin.

**Return-to-Play**

When initiating the return-to-play process, it is not a process in which the athlete can be pushed through. The athlete must pass the SCAT3/VOMS test to initiate the RTP progression. Under ideal circumstances, the athlete must be able to pass each of the 6 levels asymptomatic, with a 24-hour rest period between (see table 3 for progression). An athlete cannot progress more than one level within the same 24-hour period. If symptoms return at any point, the return-to-play process is stopped for the day, and regresses one step the next day. The athlete should seek one of the head athletic trainers after developing symptoms. Until the athlete has progressed through the entire return-to-play progression, he/she cannot return to participation.

**Considerations**

Key points to remember when handling a concussion: remove the athlete immediately from sport participation, provide an assessment to clearly identify the severity of the concussion, provide daily reassessments, and the return-to-play process can begin after recommendation from a physician and/or an asymptomatic period of at least 24-hours. In order to assess for a concussion, the Sport Concussion Assessment Tool (SCAT3) with a Vestibular/Ocular-Motor Screening (VOMS) should be administered. **The head athletic trainer has the final determination if an athlete is ready to progress through concussion rehabilitation. Even if a physician’s note is given to the**

**head athletic trainer, the head athletic trainer has the final determination in how rehabilitation is handled.**

**On-field Management/Post-game Management**

1. The head athletic trainer will be at the athlete's side on the field to assist in getting him/her to the sideline
2. Maddock's Score/SAC (may be modified)/cranial nerve assessment/VOMS are utilized to determine if a concussion is present/how severe
    a. Transportation decision if necessary
3. Monitor the athlete if a concussion was not present upon the initial evaluation prior to allowing him/her to participate again
    a. The athlete must pass a second concussion exam on the sidelines to fully rule-out the presence of a concussion
4. Complete shutdown of the athlete from all participation if a concussion is present
5. Athlete is instructed he/she must come to the athletic training room the next day for a full examination

**Next Day Management (athletes who did not report concussion the day prior)**

1. Full concussion evaluation utilizing SCAT3/VOMS/Cranial nerve assessment
    a. Suggestion for referral to PCP for restrictions/accommodations for class & shop
2. Restrictions from play based upon results (anticipated time-line)
3. Daily check-in until discharge

**Return-To-Play Progression**

1. 24-hour period asymptomatic
2. Successful completion of the SCAT3/VOMS test
3. Follow guidelines of 6 day RTP progression listed in **table 1 on the next page**

**Table 1**

| Return-to-Play Progression | | |
|---|---|---|
| **Day** | **Physical Activity** | **Objective** |
| **1** | No activity until symptom recovery | Recovery |
| **2** | Light exercise for 20 min.: walking, swimming, stationary bike; 70% age predicted maximum heart rate | Increased heart rate |
| **3** | Sports-specific exercise: skating drills in ice hockey, running drills in soccer, no head impact of any kind | Add movement |
| **4** | Non-contact training drills: progression to more complex training drills; passing, progressive resistance training | Exercise, coordination, cognitive load |
| **5** | Limited, controlled, and gradual return to full-contact: following medical clearance participate in normal training | Restore athlete confidence; coaching staff assesses functional ability |
| **6** | Return-to-play: normal game play | |
| **Stages are separated by 24 hours & one stage per 24-hour period** | | |

**Per Darlene Kirychuk/Dr. Milanese, a student's doctor can override our return-to-play protocols. When in doubt, please consult with the school nurse and athletic director.

# CTECS Technical High School Athletic Training Policy and Procedure on Cervical Spine Injury Management

Spinal cord injuries are very serious and can severely impact an athlete's life. A majority of all spinal cord injuries occur to athletes between the ages of 16-30. Sports with constant collisions or body-to-body contact have a high risk for spinal cord injuries with lacrosse and men's ice hockey having the highest risk, then football. However, football spinal cord injuries are more catastrophic. A cervical spinal injury is defined as; an alteration of the cervical spine causing damage or having the potential for damage, leading to death or other complications to an athlete's life.

**Anatomy and Physiology**

The cervical spine is composed of 7 vertebrae, and 8 sets of nerve roots on either side of each vertebrae. Depending on the location and severity of the cervical spine injury will determine the level of dysfunction present. The nerve roots, C5-C8, provide innervation to the upper extremities (arms/hands). An injury to the lower nerve roots will normally leave an athlete with the ability to breathe and speak; however, paralysis and/or weakness may be present in the upper extremities and trunk. If one of the lower cervical spine nerve roots is injured, the injury may not be as severe, but the injury still remains very serious and should be handled accordingly. An injury to cervical nerves (C1-C4) can cause serious harm to an athlete. The higher cervical nerves are responsible for breathing, movement of the head, eyes, and intracranial blood vessels. If any of the four upper cervical nerves are damaged, or severed, the athlete may have quadriplegia (tetraplegia).

**Management**

The head athletic trainer makes all the calls on treatment, and is stabilizing the head of the athlete for a suspected cervical spine injury. If one of the coaches has medical training (EMR, EMT, EMT-P), he/she can begin to provide care for the athlete until the head athletic trainer arrives at the field. Upon conducting the initial assessment, the following findings are typically indicative of a serious cervical spine injury: unconsciousness or an altered level of consciousness, significant pain along the spine with/without pain, bilateral neurological abnormalities and/or obvious deformity. As soon as a cervical spine injury is suspected, 9-1-1 should be dialed to summon EMS.

**Stabilization and Airway**

To stabilize the cervical spine, the head should be placed in a neutral position, and manually held in the position by an athletic trainer or person with medical training. **Once a person has begun to hold manual stabilization, he/she cannot let go until the head is secured with a cervical collar and head blocks.** Proper manual stabilization is performed by placing both hands on the lateral aspect of the head and upper aspect of the neck to restrict movement. However, the cervical spine should not be realigned if any of the following contraindications arise: increased pain with movement of the neck, neurological symptoms, muscle spasms, and/or airway compromise. Additionally, if the athlete has apprehension with movement of the cervical spine into the neutral position, the head should be left as found, and stabilized. The biggest concern when treating an athlete with a suspected cervical spine injury is airway management. If the head cannot be moved, then the airway needs to be managed properly, and precautions must be taken to ensure the airway remains open. If the athlete is found in the prone position, the rescuers must know how to properly perform the log roll technique to place the athlete into the supine position.

**Holding stabilization of the cervical spine does not involve the use of traction, or pulling, on the vertebral column. If traction is incorporated with stabilization, the injury could be made worse, and further complications may occur.**

**Equipment and Equipment Removal**

One of the biggest issues when treating a suspected cervical spine injury is the presence of bulky protective equipment. All equipment can be left on the athlete unless the airway is compromised, and/or the airway cannot be easily accessed/managed. However, equipment must be removed when: the head is able to move freely inside the helmet, improper alignment of the cervical spine, and/or impaired access to the airway. In a situation requiring the removal of the helmet or shoulder pads, both articles must be removed as stated previously. By only removing the shoulder pads or only the helmet places the cervical spine into either flexion or extension. During a sport such as football, an athlete may be injured in a play subsequently removing his helmet in the process. However, the shoulder pads may not need to be removed, and padding can be placed beneath the head to assist in providing neutral alignment of the cervical spine. Rescuers providing treatment to an injured athlete still have the ability to access the airway without removal of the helmet. The facemask can easily be removed by either cutting the mask or using a cordless screwdriver; however, during the process excess movement of the head should be avoided. The preferred method utilizes a cordless screwdriver due to the method being quick and causing very little movement of the head. Ensuring quick removal of the helmet requires a well-trained athletic trainer, and well-maintained equipment. During a long season, any type of helmet will suffer damage. Having all helmets reconditioned and recertified by the National Operating Committee on Standards for Athletic Equipment (NOCSAE) ensures the helmets are able to be worn by athletes, and will provide coverage for injuries sustained while wearing the piece of equipment. However, the warranty becomes void if the athlete chooses to alter the headgear in any way, and/or the helmets are not properly maintained at the end of the certification period. With new developments in helmets, equipment intensive sports are receiving helmets which are increasingly easier to remove in an emergency situation. Many football helmets have facemask pins allowing for quicker and more efficient removal.

**Considerations**

Caring for a suspected cervical spine injury is a serious matter, and needs to be handled in an effective manner. As soon as a spinal injury is suspected, emergency personnel need to be summoned to the athletic field, or court to transport the athlete to the hospital. A trained medical professional is required to hold the cervical spine in neutral alignment without traction, reducing the chances of the injury becoming worse. After placing a cervical collar on the athlete, placing him/her on a backboard, and applying head blocks, stabilization can be released. The rescuer at the head of the athlete makes all the calls on movements whether it is to roll, move to a backboard, or to lift the patient. The main key points with treating cervical spine injuries are to be well-trained, and well-prepared to handle the injury.

**Management of the Incident:**

Members of the medical/management team include the head athletic trainer, any other athletic trainer providing coverage, director of athletics, security, sight supervisor, staff with medical certifications, and the ambulance if one is on-sight for the competition. Only the medical team and family members will know pertinent HIPPA information.

**Procedure:**

1. Follow the Emergency Action Plan for the specific athletic venue
2. The head athletic trainer will remain with the athlete to coordinate communication while beginning to provide acute care
    a. Log roll athlete if found prone (face down)
    b. Hold manual stabilization
    c. Remove any excess equipment restricting airway access, neutral cervical spine alignment, and determine severity of the injury
    d. Care for the athlete until additional help arrives
3. Have additional members of the team assist the ambulance upon arrival with direction to the field, and bringing equipment to the scene
4. Notify the family members
5. Notify the team members and head coach
    a. Provide assistance for the family members, teammates, and coaches as needed

**Chain of Command**

1. Head Athletic Trainer
2. Other Athletic Trainer(s) on-sight
3. Staff with medical certification (EMR/EMT/EMT-P)
4. EMS staff from ambulance
5. Additional personnel
    a. AD, administration, security, etc.

# CTECS Technical High School Athletic Training Policy and Procedure on Catastrophic Injury Management

A catastrophic injury is any injury resulting in the sudden death of an athlete, coach, or staff member, and/or impairment to quality of life resulting from a spinal injury, loss of a paired organ, severe head injury, injury/illness reducing mental capabilities/ADL capacity, and/or loss of speech, hearing (bilateral), sight (bilateral), or use of an arm/leg. Catastrophic injuries can happen in any sport, and to anyone. Generally, fall sports have the highest prevalence followed by spring, then winter. Football accounts for the highest risk for catastrophic injury, requiring a certified athletic trainer to be on the sidelines for every game, and closely monitoring practices. Other sports with a high risk of catastrophic injury are: baseball, softball, and wrestling.

**Management of the Incident:**

Members of the medical/management team include the head athletic trainer, any other athletic trainer providing coverage, director of athletics, security, sight supervisor, staff with medical certifications, and the ambulance if one is on-sight for the competition. Only the medical team and family members will know pertinent HIPPA information.

For such an incident, the fire department will most likely be activated as well if Life Star is requested. The fire department members will assist in coordinating the effort.

**Procedure:**

1. Follow the Emergency Action Plan for the specific athletic venue
2. The head athletic trainer will remain with the athlete to coordinate communication while beginning to provide acute care
    a. Log roll athlete if found prone (face down)
    b. Hold manual stabilization, if necessary
    c. Remove any excess equipment restricting airway access, neutral cervical spine alignment, and determine severity of the injury
    d. Care for the athlete until additional help arrives
3. Have additional members of the team assist the ambulance upon arrival with direction to the field, and bringing equipment to the scene
    a. The athlete should be transported to a Level I Trauma Facility by ambulance if Life Star Helicopter is unavailable or not requested.
        **i. Life Star requires a landing zone of at least 75 feet x 85 feet with flat ground, and free of overhead obstructions**
    b. Either the baseball field or the football field will be used depending on what fields are in use
        i. If both are in use, a decision will be made to completely clear one of the fields to be designated as the landing zone
        ii. If the pilots or dispatch prefer using the Danielson Airport, such a decision NEEDS to be relayed to whomever is using the airport that day
    c. The landing zone should be marked by orange cones or some type of contrasting color items/lighting
4. Notify the family members
5. Notify the team members and head coach
    a. Provide assistance for the family members, teammates, and coaches as needed

**Life Star Procedure**

1. **Life Star requires a landing zone of at least 75 feet x 85 feet with flat ground, and free of overhead obstructions**

2. Either the baseball field or the football field will be used depending on what fields are in use
    a. If both are in use, a decision will be made to completely clear one of the fields to be designated as the landing zone
    b. If the pilots or dispatch prefer using the local Airport, such a decision **NEEDS** to be relayed to whomever is using the airport that day
3. The landing zone should be marked by orange cones or some type of contrasting color items/lighting
4. Secure the landing zone to prevent any unauthorized from approaching the helicopter while keeping the area free of loose debris and hazards
5. Keep clear of the helicopter during landing and takeoff with anyone in the immediate area wearing eye protection
6. **DO NOT** approach Life Star unless directed to do so by the flight crew
    a. If instructed to approach the helicopter, stay within eyesight of the pilot and **NEVER** approach the tail area
7. Follow any and all directions from the flight crew while assisting

**Considerations:**

In the event of a catastrophic injury, care of the athlete should be prioritized as ALS or advanced life support. After determining what type of catastrophic injury has occurred, all information must be relayed to the Ambulance either through 9-1-1 or once on-scene for the EMTs and Paramedic to have the correct equipment. The key to treating an athlete prior to the Ambulance arriving is providing optimal care as best possible. In some cases, it may be very difficult or impossible, but all healthcare providers need to work together in order to save the athlete.

**Catastrophic injury encompasses multiple types of injuries threatening an athlete's life. Preparation for such an injury is difficult, but the best preparation is knowing the procedure for managing the incident. Each injury which could be considered catastrophic needs to be quickly, and accurately identified to obtain optimal care and additional resources.**

A situation requiring an AED needs to be available within 3 minutes, but the first minute is considered the "golden minute". As stated under the **equipment section**, AEDs have specific locations on-campus. Typically, an athlete suffering from sudden cardiac arrest (SCA) may have the athlete exhibiting seizure-like activity. The assumption should be made, seizure-like activity means SCA. Additionally, CPR should begin as soon as possible, averaging 100 compressions per minute, only stopping for breaths unless a CPR mask is unavailable, or AED administration. Compression-only CPR is not as effective as CPR with rescue-breaths, but does provide life-saving measures. **(Refer to the AED/CPR section)**

**Chain of Command**

1. Head Athletic Trainer
2. Other Athletic Trainer(s) on-sight
3. Staff with medical certification (EMR/EMT/EMT-P)
4. EMS staff from ambulance
5. Additional personnel
    a. AD, administration, security, etc.

# CTECS Technical High School Athletic Training Policy and Procedure on Exertional Sickling

Sickle cell trait is an inherited condition in which an athlete inherits a gene for sickle hemoglobin and normal hemoglobin. The red protein, hemoglobin, is responsible for the transportation of oxygen throughout the body. An athlete with sickle cell trait will have a certain percentage of hemoglobin with a half-moon shape, or sickle shaped. Misshapen hemoglobin not only has a reduced capacity for carrying/delivering oxygen for muscle cells, but puts an athlete at an increased risk of sudden death.

An athlete with sickle cell trait can develop a life-threatening condition known as ischemic or explosive rhabdomyolysis, or a build-up of red blood cells causing muscle to breakdown as a result of being "blood starved". As muscle breaks down during rhabdomyolysis, the contents move throughout the body, potentially leading to renal failure. Knowing an athlete is susceptible to such a condition is major as rhabdomyolysis can begin within 2-3 minutes of exertion. Transitional periods present the highest disposition for athletes to suffer negative effects of sickle cell trait. Easing an athlete, as well as the team through a progressively intensifying workload lowers the risk for exertional sickling, but the risk remains present.

**Management of the Incident:**

Members of the medical/management team include the head athletic trainer, any other athletic trainer providing coverage, director of athletics, security, sight supervisor, staff with medical certifications, and the ambulance if one is on-sight for the competition. Only the medical team and family members will know pertinent HIPPA information.

**Procedure:**

1. Follow the Emergency Action Plan for the specific athletic venue
2. The head athletic trainer will remain with the athlete to coordinate communication while beginning to provide acute care
    a. Log roll athlete if found prone (face down)
    b. Hold manual stabilization (if needed)
    c. Remove any excess equipment restricting airway access
    d. Check all vitals
    e. If available, administer oxygen
    f. Provide cooling
    g. With the 9-1-1 call, make sure the ambulance is ALS, and the hospital knows to expect a patient with rhabdomyolysis.
3. Have additional members of the team assist the ambulance upon arrival with direction to the field, and bringing equipment to the scene
4. Notify the family members
5. Notify the team members and head coach
    a. Provide assistance for the family members, teammates, and coaches as needed

**Considerations:**

The key factor in treating sickle cell trait is knowing which athlete(s) have the trait. After determining the affected population, it is imperative to ensure a progressive system in regards to physical activity, incorporating long rest periods. Factors inhibiting an athlete from preparing for participation, or causing exertional sickling are: severe hypoxemia (abnormally low blood oxygen levels), metabolic acidosis, muscle hyperthermia, red-cell dehydration, and altitude. Having an athlete with sickle cell trait and traveling to higher altitudes force the body to better utilize oxygen. However, over a normal acclimatization period an athlete can be better prepared to function in the

thinner air when compared to an athlete with sickle cell trait who may not be able to participate at full capacity, if at all. Additionally, the overall well-being of the athlete will further affect how he/she performs, particularly through hydration status. Dehydration can lead to a worsening of sickling, if it were to occur, causing a larger build-up of red blood cells.

In some cases, sickling can be mistaken for sudden cardiac death or heat cramps. However, sudden cardiac death does not include muscle cramping. Additionally, muscle cramping cannot be associated with exertional sickling due to muscle cramps causing a specific muscle to go into spontaneous spasm. Exertional sickling causes an athlete to drop to the ground as a result of weak muscles without the presence of pain, typically within the first 30-minutes of activity.

**If any signs/symptoms of exertional sickling are noticed, the athlete should be removed from participation immediately.**

# CTECS Technical High School Athletic Training Policy and Procedure For Athletic Venues On/Off-Campus

**Cross Country**

Emergency Personnel:

Head athletic trainer on-site or in direct contact with the coach

Emergency Communication:

Cell phone with coach, AD, and head athletic trainer

Emergency Equipment:

Athletic training kit, cross country medical kit, wheelchair in nurse's office, and AEDs located outside the basketball gym, near the nurse's office, and other hallway locations around the school. If any additional equipment is needed, the information needs to be relayed to whoever is calling for an ambulance.

Emergency Procedure:

1. Directly tell/ask coach, or nearby person to dial 9-1-1
    a. State who you are
    b. Description of what is taking place
    c. Number of patients
    d. Where you are located in the park
        i. Specific directions on how to access the course, including where in the course the injured athlete is located.
        ii. The cross country teams utilize various trails and routes around the campus/immediate rural area and are in direct contact with the coach. When/if an injury occurs, a coach will contact the head athletic trainer and the best route to access the athlete's location will be determined.

    e. Any additional information needed by the dispatcher, or relevant to what is taking place
    f. State someone will be at a determined location waiting for the ambulance and will help guide the ambulance to the injured.
    g. Never hang up before the dispatcher hangs up
    h. When the ambulance arrives
        i. Provide crowd control and provide an easy way for the EMS providers to access the injured athlete
        ii. Provided additional help for the ATC and EMS personnel when instructed

## Baseball Diamond

On Campus~ CTECS Tech

Emergency Personnel:

Head athletic trainer on-site or in direct contact with the coach

Emergency Communication:

Cell phone with AD, and head athletic trainer

Emergency Equipment:

Athletic training kit, football/soccer/track medical kits, wheelchair in nurse's room, and AEDs located outside the basketball gym, and other hallway locations around the school. If any additional equipment is needed, the information needs to be relayed to whoever is calling for an ambulance.

Emergency Procedure:

1. Directly tell/ask coach, or nearby person to dial 9-1-1
    a. State who you are
    b. Description of what is taking place
    c. Number of patients
    d. Where you are located on campus
        i. Specific directions on how to access the field, including where on the field the injured athlete is located
        ii. Specific directions on how to access the school athletic fields. Someone should be waiting at the closest entrance.
        iii. Drive straight to the large gate and the gate will be opened for the ambulance to enter the field at the double gate.
    e. Any additional information needed by the dispatcher, or relevant to what is taking place
    f. State someone will be at the entrance waiting for the ambulance and will help guide the ambulance to the field
    g. Never hang up before the dispatcher hangs up
    h. When the ambulance arrives
        i. Provide crowd control and provide an easy way for the EMS providers to access the injured athlete
        ii. Provided additional help for the ATC and EMS personnel when instructed

**Softball Diamond**

On Campus~ CTECS Tech

Emergency Personnel:

Head athletic trainer on-site or in direct contact with the coach

Emergency Communication:

Cell phone with AD, and head athletic trainer

Emergency Equipment:

Athletic training kit, football/soccer/track medical kits, wheelchair in nurse's room, and AEDs located outside the basketball gym, and other hallway locations around the school. If any additional equipment is needed, the information needs to be relayed to whoever is calling for an ambulance.

Emergency Procedure:

2. Directly tell/ask coach, or nearby person to dial 9-1-1
    a. State who you are
    b. Description of what is taking place
    c. Number of patients
    d. Where you are located on campus
        i. Specific directions on how to access the field, including where on the field the injured athlete is located
        ii. Specific directions on how to access the school athletic fields. Someone should be waiting at the closest entrance.
        iii. Drive straight to the large gate and the gate will be opened for the ambulance to enter the field at the double gate.
    e. Any additional information needed by the dispatcher, or relevant to what is taking place
    f. State someone will be at the entrance waiting for the ambulance and will help guide the ambulance to the field
    g. Never hang up before the dispatcher hangs up
    h. When the ambulance arrives
        i. Provide crowd control and provide an easy way for the EMS providers to access the injured athlete
        ii. Provided additional help for the ATC and EMS personnel when instructed

**Football Field/Soccer Field**
On Campus~ CTECS Tech

Emergency Personnel:
Head athletic trainer on-site or in direct contact with the coach

Emergency Communication:
Cell phone with AD, and head athletic trainer

Emergency Equipment:
Athletic training kit, football/soccer/track medical kits, wheelchair in nurse's room, and AEDs located outside the basketball gym, and other hallway locations around the school. If any additional equipment is needed, the information needs to be relayed to whoever is calling for an ambulance.

Emergency Procedure:

3. Directly tell/ask coach, or nearby person to dial 9-1-1
    a. State who you are
    b. Description of what is taking place
    c. Number of patients
    d. Where you are located on campus
        i. Specific directions on how to access the field, including where on the field the injured athlete is located
        ii. Specific directions on how to access the school athletic fields. Someone should be waiting at the closest entrance.
        iii. Drive straight to the large gate and the gate will be opened for the ambulance to enter the field at the double gate.
    e. Any additional information needed by the dispatcher, or relevant to what is taking place
    f. State someone will be at the entrance waiting for the ambulance and will help guide the ambulance to the field
    g. Never hang up before the dispatcher hangs up
    h. When the ambulance arrives
        i. Provide crowd control and provide an easy way for the EMS providers to access the injured athlete
        ii. Provided additional help for the ATC and EMS personnel when instructed

**When football or soccer take place off site for home games:**
Same protocols
AED located: *no AED on site*

**Rifle Team**
Offsite

Emergency Personnel:
Head coach

Emergency Communication:
Cell phone with coach, AD

Emergency Equipment:
Athletic training kit, any available resources at offsite location.

Emergency Procedure:
1. Directly tell/ask coach, or nearby person to dial 9-1-1
    a. State who you are
    b. Description of what is taking place
    c. Number of patients
    d. Where you are located
        i. Specific directions on how to access the location, including where in the building the injured athlete is located
    e. Any additional information needed by the dispatcher, or relevant to what is taking place
    f. State someone will be at the entrance waiting for the ambulance and will help guide the ambulance to the location
    g. Never hang up before the dispatcher hangs up
    h. When the ambulance arrives
        i. Provide crowd control and provide an easy way for the EMS providers to access the injured athlete
        ii. Provided additional help for the ATC and EMS personnel when instructed

**Fitness Center**

On Campus~ CTECS Tech

Emergency Personnel:

Head athletic trainer on-site or in direct contact with the coach

Emergency Communication:

Cell phone with AD, and head athletic trainer

Emergency Equipment:

Athletic training kit, football/soccer/track medical kits, wheelchair in nurse's room, and AEDs located outside the basketball gym, and other hallway locations around the school. If any additional equipment is needed, the information needs to be relayed to whoever is calling for an ambulance.

Emergency Procedure:

4. Directly tell/ask coach, or nearby person to dial 9-1-1
    a. State who you are
    b. Description of what is taking place
    c. Number of patients
    d. Where you are located on campus
        i. Specific directions on how to access the room, including where in the room the injured athlete is located
        ii. Specific directions on how to access the front of the building. Someone should be waiting at the closest entrance.
    e. Any additional information needed by the dispatcher, or relevant to what is taking place
    f. State someone will be at the entrance waiting for the ambulance and will help guide the ambulance to the room.
    g. Never hang up before the dispatcher hangs up
    h. When the ambulance arrives
        i. Provide crowd control and provide an easy way for the EMS providers to access the injured athlete
        ii. Provided additional help for the ATC and EMS personnel when instructed

**CTECS Gymnasium~ Main Gym or Back Gym**

On Campus~ CTECS Tech

Emergency Personnel:

Head athletic trainer on-site or in direct contact with the coach

Emergency Communication:

Cell phone with AD, and head athletic trainer

Emergency Equipment:

Athletic training kit, football/soccer/track medical kits, wheelchair in nurse's room, and AEDs located outside the basketball gym, and other hallway locations around the school. If any additional equipment is needed, the information needs to be relayed to whoever is calling for an ambulance.

Emergency Procedure:

5. Directly tell/ask coach, or nearby person to dial 9-1-1
    a. State who you are
    b. Description of what is taking place
    c. Number of patients
    d. Where you are located on campus
        i. Specific directions on how to access the gym, including where in the gym the injured athlete is located
        ii. Specific directions on how to access the front of the building. Someone should be waiting at the closest entrance.
    e. Any additional information needed by the dispatcher, or relevant to what is taking place
    f. State someone will be at the entrance waiting for the ambulance and will help guide the ambulance to the gym.
    g. Never hang up before the dispatcher hangs up
    h. When the ambulance arrives
        i. Provide crowd control and provide an easy way for the EMS providers to access the injured athlete
        ii. Provided additional help for the ATC and EMS personnel when instructed
    i. If the injured is in the back gym, direct the ambulance to stop before the main entrance and enter through the gym doors; someone should be waiting with the door open.

**Golf: Off-campus**

Emergency Personnel: Coach

Emergency Communication:
Cell phone with coach

Emergency Equipment:
Golf medical kit, if any additional equipment is needed, the information needs to be relayed to whoever is calling for an ambulance.

Emergency Procedure:

1. Directly tell/ask coach, or nearby person to dial 9-1-1
    a. State who you are
    b. Description of what is taking place
    c. Number of patients
    d. Where you are located on campus
        i. Specific directions on how to acSpecific directions on how to access the course, including where in the course the injured athlete is located.
        ii. The golf teams utilize various courses. When/if an injury occurs, a coach will contact the head athletic trainer and the best route to access the athlete's location will be determined.
        iii. Access the course, including where on the golf course the injured athlete is located.
    e. Any additional information needed by the dispatcher, or relevant to what is taking place
    f. State someone will be at the entrance waiting for the ambulance and will help guide the ambulance to the field
    g. Never hang up before the dispatcher hangs up
    h. When the ambulance arrives
        i. Provide crowd control and provide an easy way for the EMS providers to access the injured athlete
        ii. Provided additional help for EMS personnel when instructed