

The Exertional Heat Illness Guidelines & Procedures are always relevant and will be in place when environmental conditions are extreme.

1. Purpose of policy:

The Sports Medicine Department has instituted these guidelines & procedures to protect the student-athletes of the Dallas Independent School District of Heat Related Illnesses. Exertional heat illness includes exercise-associated muscle cramps, heat syncope, heat exhaustion, and exertional heat stroke (EHS). Current best practice guidelines suggest that the risk of exertional heat injuries can be minimized with heat acclimatization and diligent attention to monitoring individuals participating in activities that place them at a higher risk for these types of injuries.¹ In the event an athlete sustains a heat illness, immediate and proper treatment is needed.

National governing bodies, such as the National Federations of High School Associations, and numerous state athletic/activity associations, have published guidelines for the prevention, monitoring and treatment of exertional heat illnesses. In addition, national authorities such as the National Athletic Trainers' Association and the Korey Stringer Institute have published research to support best practices in this area. The development of the organization's heat acclimatization guidelines will be based on the current best practice documents.

¹Casa DJ, Demartini JK, Bergeron MF, et al. National Athletic Trainers' Association Position Statement: Exertional Heat Illnesses. *Journal of Athletic Training*. 2015;50(9):986-1000.

2. Guideline statement:

This guideline describes the best practice procedures for the prevention, monitoring, and when necessary, the treatment of exertional heat illnesses for students/athletes, faculty and staff of Dallas Independent School District.

This guideline will be a living, working document that is continually reviewed and updated yearly as the organization and our community changes.

3. Definitions:

- **Acclimatization** – The process of gradually increasing the intensity of activity in a progressive manner that improves the body's ability to adapt to and tolerate exercise in the heat.
- **Wet Bulb Globe Temperature** – The WBGT is a measurement tool that uses ambient temperature, relative humidity, wind, and solar radiation from the sun to get a comprehensive measure that can be used to monitor environmental conditions during exercise. WBGT is different than heat index, as it is a more comprehensive measurement of environmental heat stress on the body.
- **Non-Practice Activities** – Activities that include meetings, injury treatment, and film study.
- **Practice** – the period of time that a student-athlete engages in coach-supervised, school approved sport or conditioning related-activity. Practice time includes from the time the players report to the field until they leave.

- **Full Contact** – Any football drill or live game simulation where players are at a “competitive” full-speed pace and players are taken to the ground.
- **True Walk Through** – A period of time where players are reviewing positional strategy and rehearsing plays. Players do not experience contact and thus they do not wear equipment and the intensity of the activity is minimal often involving walking. This period of time shall last no more than one hour. It is not considered part of the practice time regulation. It may not involve conditioning or weight room activities. Players may not wear protective equipment during the walk through.
- **Recovery Time** – This period of time is defined as non-activity time outside of practices or games. NO ACTIVITY, including non-practice activity, can occur during this time. Proper recovery should occur in an air-conditioned facility, when possible and usually is a minimum of 3 hours in duration.
- **Rest Breaks** – This period of time occurs during practice and is a non-activity time that is in a ‘cool zone’ out of direct sunlight.
- **Exertional Heat Stroke (EHS)** – Defined as having a rectal temperature over 104°F-105°F (40.5°C), and central nervous system dysfunction (e.g. irrational behavior, confusion, irritability, emotional instability, altered consciousness, collapse, coma, dizzy, etc.).
- **Cooling Zone**- An area out of direct sunlight with adequate air flow to assist in cooling. A cold-water or ice tub and ice towels should be available to immerse or soak a patient with suspected heat illness. This may be outdoors or indoors depending on proximity to field.
- **Qualified Health Care Professional (QHP)** - As defined by the American Medical Association (AMA), “is an individual who is qualified by education, training, licensure/regulation (when applicable), and facility privileging (when applicable) who performs a professional service within his/her scope of practice and independently reports that professional service.”
- **Hypohydration**- (reduced hydration status) is a deficit of body water that is caused by acute or chronic dehydration.
- **Central Nervous System dysfunction**- includes any sign or symptom that the central nervous system is not working properly; including dizziness, drowsiness, irrational behavior, confusion, irritability, emotional instability, hysteria, apathy, aggressiveness, delirium, disorientation, staggering, seizures, loss of consciousness, coma, etc.

4. Scope:

This guideline applies to all staff members (e.g., athletic trainers, physicians, athletic administrators, coaches, strength and conditioning staff, school administrators, advisors) of the Dallas Independent School District who are associated with activities where heat illness poses a risk, including but not limited to, outdoor and indoor activities where high temperature and specifically high humidity environmental risks are present (e.g., athletics, dance, course instruction, marching band).

5. Procedures:

Prevention

Pre-participation history and physical exam

1. A thorough medical history will be gathered (history of heat illness, sickle cell trait/disease, etc.)
2. Individuals with risk factors will be identified and counseled (see table below):

Risk Factors for Heat Illness	
<i>Intrinsic</i>	<i>Strategies to Minimize Risk</i>
High intensity exercise	Gradually phase in exercise and conditioning
Fever or illness	Monitor and remove at risk athletes as necessary
Dehydration	Educate coaches/athletes on proper hydration Provide adequate access to water
Overweight/obesity	Gradually phase in exercise and conditioning
Lack of heat acclimatization	Follow heat acclimatization program
Medications (antihistamines, diuretics, ADHD drugs)	Monitor and remove at risk athletes as necessary
Skin disorder (sunburn or malaria rubra)	Monitor athletes closely
Predisposing medical conditions	Monitor and remove at risk athletes as necessary
<i>Extrinsic</i>	<i>Strategies to Minimize Risk</i>
High ambient temperature, solar radiation or humidity	Avoid exercise in hotter parts of the day
Heavy gear or equipment	Gradually introduce equipment
Poor practice design	Educate coaches regarding strategies to minimize risk

- When applicable the Athletic Trainer or persons responsible will be notified of individuals with pre-existing conditions that place the individual at risk of exertional heat illness
- As necessary, coaches are notified of individuals at higher risk

Environmental Monitoring and Activity Modification/Cancellation

- Environmental monitoring will occur utilizing the Kestrel 5400, a WBGT device.
- Environmental monitoring will occur any time it is warm outside (i.e. WBGT over 82°F).
 - This will occur at all High School and Middle School campuses.
 - Middle school Coaches need to contact their nearest High Schools athletic trainer for readings before they start practice daily.
- Monitoring of WBGT will occur every 15 minutes before the start of practice and every 30 minutes beginning at the scheduled practice time
 - The athletic trainer will monitor the WBGT
 - The athletic trainer will make the modification/cancelation of activity
 - WBGT will be taken on the field where the athletic activity will take place
 - All environmental monitoring will be recorded by the athletic trainer and stored on Desktop PC
- Modifications are meant to be fluid, meaning if the environment gets more oppressive, the modifications get stricter. However, if environmental conditions improve, the modifications will be in line with the new environmental conditions.

	Activity Guidelines
< 82.0	Normal Activities – Provide at least three separate rest breaks each hour with a minimum duration of 5 min each during the workout.
82.0 - 86.9	Use discretion for intense or prolonged exercise; Provide at least three separate rest breaks each hour with a minimum duration of 5 min each.
87.0 - 90.0	Maximum practice/exposure time is 2 h. <u>For Football</u> : players are restricted to helmet, shoulder pads, and shorts during practice. If the WBGT rises to this level during practice, players may continue to work out wearing football pants without changing to shorts. <u>For All Sports</u> : Provide at least four separate rest breaks each hour with a minimum duration of 5 min each.
90.1 – 92.0	Maximum practice/exposure time is 1 h. <u>For Football</u> : No protective equipment may be worn during practice, and there may be no conditioning activities. <u>For All Sports</u> : There must be 20 min of rest breaks distributed throughout the hour of practice.
≥ 92.1	No outdoor workouts. Delay practice until a cooler WBGT is reached.

Acclimatization

1. This exertional heat guidelines apply to ALL sports.
2. NO OUTDOOR practices between 12pm – 6pm
 - A. This limitation starts on your sports UIL official start date and ends the first day of school
3. Every football athlete must go through 10 days of acclimatization before games
4. Every football athlete must go through 8 days of acclimatization before scrimmages
5. Days 1 through 5 of the heat acclimatization, athletes may not participate in more than 1 practice per day.
 - A. If a practice is interrupted by inclement weather or heat restrictions, the practice will recommence once conditions are deemed safe. Total practice time will not exceed 3 hours in a single day.
6. During days 1–2 of the heat acclimatization period, in sports requiring helmets or shoulder pads, a helmet will be the only protective equipment permitted (goalies, as in the case of field hockey and related sports, will not wear full protective gear or perform activities that would require protective equipment).
7. During days 3–4, helmets, shoulder pads and girdles may be worn. No Contact
8. During day 5, helmets, shoulder pads, and girdles may be worn. Person to Person contact is permitted – not full contact
9. Beginning on day 6 - 10, all protective equipment may be worn, and full contact may begin.
10. After day 6 prior to school starting:
 - A. 1 Practice - Student-athletes shall not engage in more than three hours of practice activities with up to a 1-hour break. The 1- hour break is not included within the practice time limit on those days during which one practice is conducted.
 - B. 2 Practices - Student-athletes shall not engage in more than five hours of practice activities on those days during which more than one practice is conducted. On days when more than one practice is conducted, there shall be, at a minimum, two hours of rest/recovery time between the end of one practice and the beginning of the next practice. On those days where more than one practice occurs, full contact is allowed in only one of the two practices. Schools shall not schedule more than one practice on consecutive days and student-athletes shall not participate in multiple practices on consecutive days.
 - C. The maximum length of any single practice session shall be three hours.
 - D. During the pre-season, regular season and post season, football players are not allowed to participate in more than ninety (90) minutes of full contact practice per week.
11. No post-practice conditioning with practices that exceed 2.5 hours in duration
12. Summer 6-week Strength & Conditioning – Limit outdoor exposure between 12-6pm
 - A. WBGT of 92.1° or higher – NO OUTDOOR exposure – utilize Kestrel Units for temperatures
13. Because the risk of exertional heat illnesses during the preseason heat acclimatization period is high, we strongly recommend that an athletic trainer be on site before, during, and after all practices.

Hydration

1. Hypohydration represents a continuum from both a clinical perspective (mild = 1% to 5%, moderate= 5% to 10%, and severe= 10% body mass deficit) and an athletic perspective (mild= 1-3%, moderate=3-5% and severe=5% deficit).

Assessing Hydration Status:

2. To ensure that athletes are hydrated prior to exercise a pre- and post-activity, measurement of bodyweight will be recorded utilizing scales and weight charts for the first 10 days for each athlete.
 - a. Hydration before exercise will be maintained **within 3%** of body mass compared to previous day's baseline value(s). A pre-activity hydration status of **>3%** body mass loss is associated with increased risk for heat illness therefore, if an individual is moderately dehydrated **>3%** body mass loss the individual will not be allowed to practice.
3. Be aware of the main signs and symptoms of hypohydration;
 - a. Thirst
 - b. Dark colored urine (similar to apple juice)
 - c. Acute body weight loss **>3%**
4. Hypohydration is a predisposing factor for exertional sickling and those with sickle cell trait or disease will receive targeted education and hydration monitoring.

Fluid Replacement:

5. Water breaks will be provided based on the policy on environmental-condition guidelines using work to rest ratios.
 - a. Water or other palatable fluids will be easily accessible before, during and after activity. Cool and flavored beverages are often preferred by athletes and will be made available when possible for optimal rehydration.
6. When possible, diet and rehydration beverages will include sufficient sodium (enough to replace losses) to prevent imbalances that may occur as a result of sweat and urine losses.
7. If severe hypohydration is present with vomiting or diarrhea, EMS will be activated

Monitoring

1. Monitoring of student-athletes safety will be continuous during any physical activity.
2. Athletic trainers, coaches, administrators and other athletics personnel will be educated on the signs and symptoms of exertional heat illness (see training/retraining in section 6).
 - a. These signs and symptoms include (but are not limited to) the table below

Diarrhea, Nausea or vomiting	Rapid pulse, low blood pressure, quick breathing
Headache	Dehydration, dry mouth, thirst
Confusion or just look "out of it"	Decreasing performance or weakness
Disorientation or dizziness	Profuse sweating
Altered consciousness, coma	Collapse, staggering or sluggish feeling
Irrational behavior, irritability, emotional instability	Muscle cramps, loss of muscle function/balance, inability to walk

- b. Coaches and administrators will be educated annually
 - See training/retraining in section 6

Treatment in the event of an exertional heat stroke (medical emergency)

Recognition

1. Any athlete with signs of central nervous system dysfunction during exercise in the heat should be suspected to be suffering from EHS until proven otherwise by advanced medical care providers.

2. Cooling will begin immediately, and EMS will be called.

Cooling

1. Initiate cooling via cold water immersion and or rotating cold wet towels.
2. Initiate the exertional heat stroke treatment protocol and contact EMS services immediately.
3. The patient must be moved to a cooling zone, begin appropriate treatment and continuously monitor the patient.
4. Excess clothing shall be removed to aid cooling.
 - a. If removal of clothing and/or equipment would cause delays of 5+ minutes, do not remove and initiate cooling.
5. Place patient in a cold-water (35-59°F) tub up to the neck.
 - a. Wrap a towel across the chest and beneath both arms to prevent the athlete from sliding into the tub.
 - b. Ice shall cover the surface of the water at all times.
 - c. Water shall be continuously and vigorously stirred to maximize cooling.
 - d. An ice-cold towel will be placed over the head/neck and rewet and replaced every 2 minutes.
 - e. Cooling shall cease around the 15-minute mark or when EMS arrives and is ready to transport.
6. Cold Water Immersion (CWI) Tub
 - a. Must be set up:
 - i. Designated shaded area on campus near field
 - ii. Designated area at the Stadium sites
 - b. Proper set-up includes:
 - i. A tub half-filled with water.
 - ii. Minimum of two 10-gallon water coolers with ice next to the tub ready for treatment.
 - iii. Misting fan, ice towels/sponges.
 - iv. Drinking water. Water coolers or water cows, water bottles and/or cups.
 - v. Treatment table to administer care to an injured athlete.
 - vi. Completion of set-up within 5-10 minutes prior to the practice/competition/event site.
7. Cool First, Transport Second
 - a. When a patient is diagnosed with EHS, the principle of Cool First, Transport Second will be used.

Vital sign monitoring

1. Monitor vital signs including heart rate, blood pressure and other symptoms.

EMS

1. EMS must be called immediately if a patient is suspected of EHS. Cool first and then transport.

Return to activity

Patients who have suffered an exertional heat illness must complete a rest period and obtain clearance from a physician before beginning a progression of physical activity under the supervision of a qualified medical professional. The following is the suggested protocol:

- Activity should first begin in a cool environment
- Once patient has shown success with exercise in a cool environment, patient should then complete the heat acclimatization protocol (above) for progression back into exercise in a warm environment.

6. Training/Retraining:

The following personnel have been trained to ensure a safe participation environment for all individuals, coaches, employees and staff mentioned in the Scope section of this document, who are engaged in activities that could put them at risk of exertional heat injuries.

This training includes, but is not limited to, the policy and protocols outlined in this document, the prevention of heat illness', identification of heat related illness', and when to initiate treatment for those believed to be suffering from an exertional heat illness.

Qualified healthcare professional training(s):

Will include environmental monitoring review and set up, cold water immersion tub set up, skill development, etc.

Facility:			
Name	Title	Responsibility	Date
Dr. Luis Palacios	Physician	Medical Advisor for high school; responsible for review of protocols	2-12-2020
Corey Eaton	Assistant Director of Athletics Sports Medicine	Manage and review protocols with Medical Advisor	2-12-2020

Athletic administrators, coach, and other non QHP professional training(s):

Will include environmental monitoring review and set up, heat acclimatization protocol, prevention strategies, education on signs and symptoms of patients with exertional heat illness, management of exertional heat illness'. Education will be performed by athletic trainer or other sports medicine healthcare professional, or athletic director.

Facility:			
Name	Title	Responsibility	Date
Example: Denise Smith	Head Coach	Coach responsible for monitoring WBGT, when athletic trainer is not present	12/5/00

[http://www.nflfilmstv.com/436283-league19 PH Safety_foxboro Heat Illness_PHSWebsite_EM.mp4](http://www.nflfilmstv.com/436283-league19_PH_Safety_foxboro_Heat_Illness_PHSWebsite_EM.mp4)

Video of Pre-Hospital Care of Exertional Heat Stroke

Heat Illness Check List

1. Dallas ISD Heat Illness Guidelines

- ✓ WBGT Heat Stress Monitor with documentation
- ✓ Water Breaks
- ✓ Scales/Weight Charts

2. Designated Water Emergent Care Station

- ✓ Cooling Tank
 - ✓ With emergent ice; 2 x 10 gallon water coolers
- ✓ Drinking water. Water coolers
 - ✓ With chilled water
- ✓ Water Cows
- ✓ Misting Fans
- ✓ Ice Towels/Sponges
- ✓ Table; Used to administer care to an injured athlete
- ✓ Cups and/or Water bottles

3. No Practice: 12n – 6pm (until school starts)

4. Physicals, Emergency Card and all UIL Paperwork prior to participation