



Heat Illness, Hydration, Concussion, Cardiac Emergency and Injury Management 2025

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Key Topics

1. Heat Illness Prevention and Management
2. Hydration Tips
3. Concussion Protocols
4. Cardiac Emergencies
5. Injury Prevention & Management

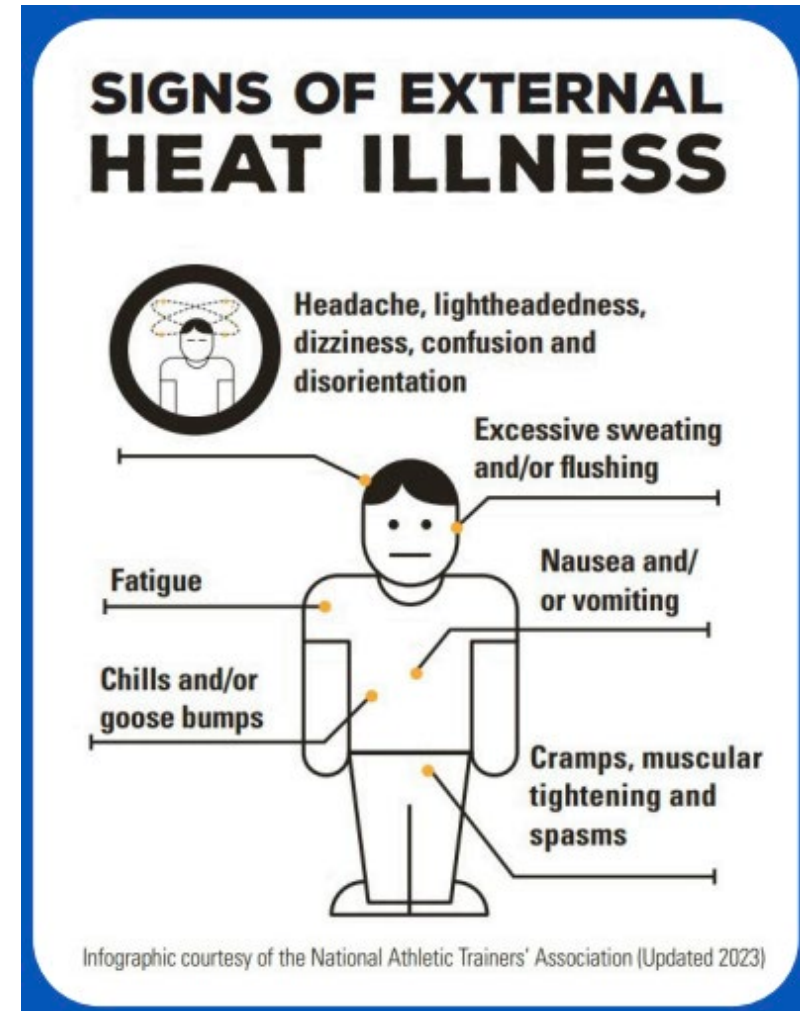


Heat Illness

Heat-related illnesses have many factors but can be caused when an individual is subjected to extreme temperatures and humidity and is unable to cool down

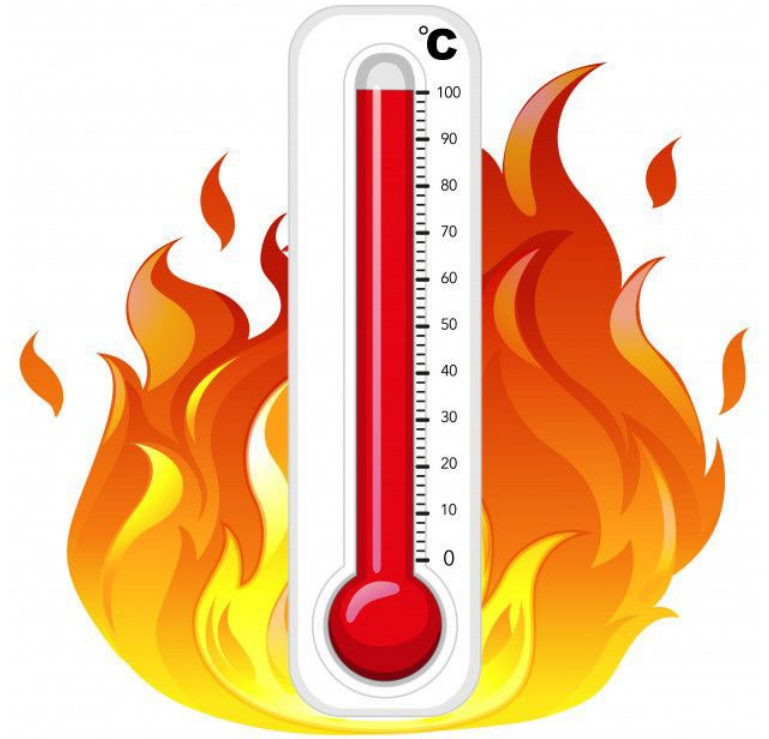
Signs & Symptoms

- Dry Skin
- Hot and flush red skin
- Very high body temperature- 104°-110°F
- Collapse during activity
- Exertional type: still sweating
- Decreased BP
- Staggering gait
- Weak, dizzy, and faint
- Loss of or altered consciousness
- Nausea/ and/or vomiting
- Rapid pulse
- Headache



Heat Illness Risk Factors

1. Dehydration
2. Obesity – excess body fat
3. Deconditioned
4. Lack of heat acclimatization
5. High-intensity exercise
6. Short-term Illness (fever or diarrhea)
7. Chronic Illness (diabetes)
8. Vapor impermeable clothing or heavy equipment
9. High ambient temperature
10. Intense solar radiation
11. Sunburn
12. Medication use (antihistamines)
13. Sickle trait or disease
14. Sleep deprivation



Heat Illness- Cooling Equipment

- Cold tub (large feed/water trough, kiddie pool, empty trash can)
 - Gold Standard for rapid cooling of athletes
- Or Tarp
 - UIL updated their Heat Policy to include requirement of rapid cooling zone during all practices and competitions during which the WBGT is above 80 degrees
- Coolers of ice (ready to add to cold tub as needed or to make ice bags)
- Ice Bags
- Access to water
- Towels
- Fans or misting fans
- Source of shade
- Electrolyte Fluids (Gatorade/Powerade, Pedialyte, Pickle Juice, etc)



TACO – Tarp Assisted Cooling & Oscillation



1. **Person:** The patient knows their own identity and who they are.
2. **Place:** The patient knows where they are located.
3. **Time:** The patient knows the current date and time.

- Cooling within 10 minutes results in 100% survival rate of athletes suffering from heat-induced injuries
- Reassess temperature every 5 minutes until temperature is <102 degrees via rectal thermometer
 - In lieu of rectal thermometer, cool until Oriented X3
- Cooler of ice water near tarp
- Ideally in shaded area
- https://www.youtube.com/watch?v=mhTvg_QUIX4 (:35)

Heat Illness- Management

Awake

1. Remove athlete from activity
2. Move athlete in cool/shaded environment (A/C-cooled car)
3. Remove all equipment
4. Give athlete cool oral fluids to drink
5. Cool with ice towels or water immersion or ice bags over hip flexors, arm pits and back of neck

If dizzy, lay down and elevate feet.

If athlete passes out or starts to lose consciousness, call 911 !!

Heat Illness- Management

Unresponsive

1. Check for breathing and heartbeat- begin CPR if needed
2. Call 911
3. Remove all equipment
4. Cool with ice towels or water immersion or ice bags over hip flexors, arm pits and back of neck
5. Once awake, begin fluids

Cool First
Transport Second!



Prevention

1. Pre-season Pre-participation Sports Physical
2. Pre-season heat acclimatization
 - A pre-season heat acclimatization policy
 - A 10-14 day period to gradually acclimate to increasing intensity, equipment and hot/humid environment
3. Monitor the environmental conditions
4. Have an emergency action plan
5. Identify At-risk athletes
6. Adjust activity levels and frequency of rest periods
7. Clothing and equipment
 - Wear light weight, light colored, moisture wicking apparel
8. Hydration
 - Consume cool fluids frequently to help regulate body temperature
 - Drink fluids before, during and after practice
9. Monitor athletes
 - Monitor hydration status
 - Monitor for signs of dehydration and heat illness



UIL WBGT Guidelines

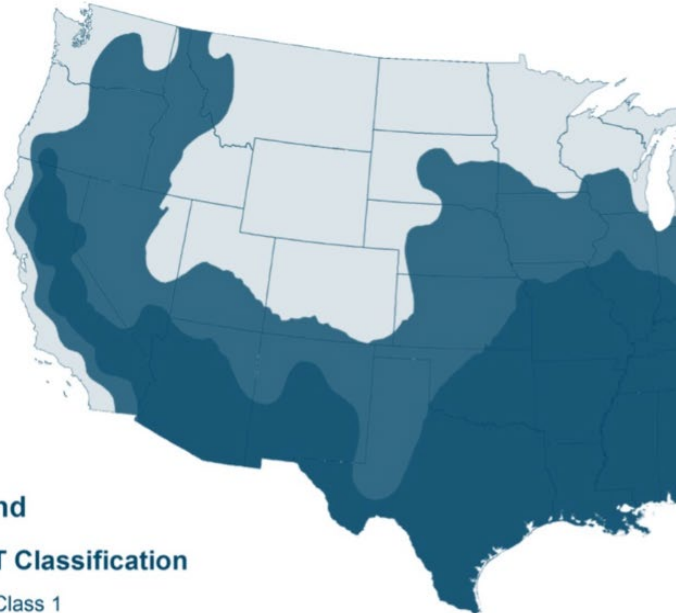
2024-2025 Recommended Heat Protocols and Procedures for Outside UIL Athletic and Marching Band Activities

In 2023, the UIL approved **Wet Bulb Globe Temperature (WBGT)** as the recommended forecast measurement to be used to monitor environmental conditions during outdoor physical activities. WBGT estimates the effect of temperature, relative humidity, wind speed, and solar radiation using a combination of temperatures from three thermometers.

WBGT Activity Guidelines

Class 3	Class 2	Activity Guidelines
< 82.0	< 79.7	Normal Activities - Provide at least three separate rest breaks each hour with a minimum duration of 3 min each during the workout.
82.0 - 86.9	79.7 - 84.6	Use discretion for intense or prolonged exercise; Provide at least three separate rest breaks each hour with a minimum duration of 4 min each.
87.0 - 90.0	84.7 - 87.6	Maximum practice time is 2 hours; For Football: 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. For All Sports: Provide at least four separate rest breaks each hour with a minimum duration of 4 min each.
90.1 - 92.0	87.7 - 89.7	Maximum practice time is 1 hour; For Football: No protective equipment may be worn during practice, and there may be no conditioning activities. For All Sports: There must be 20 min of rest breaks distributed throughout the hour of practice.
≥ 92.1	≥ 89.8	No outdoor workouts. Delay practices until a cooler WBGT is reached.

*Values in the above chart are WBGT measurements (not temperature or heat index measurements).



Legend

WBGT Classification

- Class 1
- Class 2
- Class 3



PHYSICAL
SIGNS OF:

EXERTIONAL HEAT STROKE

- Unusual Behavior
- Nausea/Vomiting
- Headache
- Staggering/Falling
- Confused/ "out of it"
- Dizziness
- Extreme Sweating
- Rapid Heartbeat
- Rapid Breathing
- Loss of Muscle of Function

If a player exhibits any of these symptoms get the on-site athletic trainer and/or begin cooling IMMEDIATELY



Plano | Frisco | Prosper | Fairview
P: 469-303-3000
childrens.com/andrews

PREVENTING HEAT STROKE



HYDRATE

- 24 hrs before activity or game day drink $\frac{1}{2}$ of body weight in oz of water
 - e.g., 160lbs = 80oz
- 4 hrs before activity or game drink 16-20oz
- 1 hr before activity or game drink 8-10oz

STAY COOL

- Find shade: tent, trees, venue structures, car with AC on
- Cool off: cooling towels, ice packs, misting fans, dunk hands or feet into an ice bucket
- Wear light and breathable fabrics when able

WBGT Reading (Cat 3)	Activity & Rest-Break Guidelines
82.0 - 86.9°F	Use caution & monitor at-risk players. Provide ≥ 3 separate rest breaks/hr of minimum 4 min each
87.0 - 89.9°F	Max practice time = 2hr. Provide ≥ 4 separate rest breaks/hr of minimum 4 min each
90.0 - 92.0°F	Max practice time = 1hr. No conditioning. 20 min of rest breaks per hour: (2) 10 min or (4) 5 min breaks
Over 92.1°F	No outdoor exercise/workouts

FOR MORE INFORMATION OR HELP MAKING AN APPOINTMENT
CALL **972-816-3682**

Hydration Tips



- 24 hrs before activity or game day drink $\frac{1}{2}$ of body weight in oz of water
 - e.g., 160lbs = 80oz
- 4 hrs before activity or game drink 16-20oz
- 1 hr before activity or game drink 8-10oz
- Drink 4-6 ounces of fluids every 15-20 minutes during event
- Replace fluids lost within 2 hours post event

AVOID CAFFEINE!!

Return to Play- Post Heat Illness

1. Refrain from exercise for at least 7 days after release from medical care
2. Follow-up 1 week after incident for a physical exam, laboratory testing and diagnostic imaging as needed
3. After cleared for activity, begin exercise in a cool environment and gradually increase the duration, intensity and heat exposure during 2 weeks to show heat tolerance and to start acclimatization
4. A laboratory exercise-heat tolerance test should be performed If unable to return to intense physical activity after 4 weeks
5. If heat tolerant, the athlete is cleared for full competition between 2 and 4 weeks after return to full training

Concussion Management

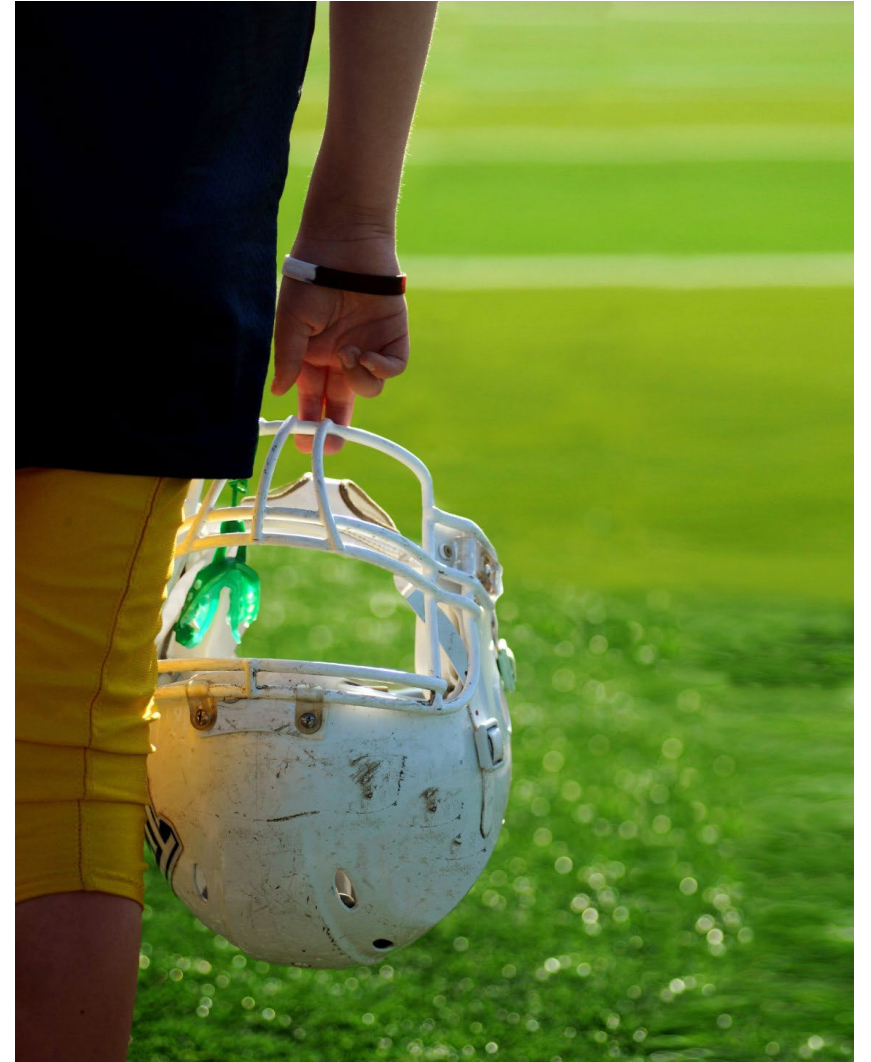
**IF IN
DOUBT,
SIT
THEM
OUT.**

Athletic Trainer > Coach,
Parent, MD (onsite)

Coaches are responsible to
reporting concussions to the
FFL administrator

Concussion Signs

- Appearing dazed or stunned
- Disorientation or confusion
- Moving clumsily
- Loss of consciousness (even briefly)
- Vomiting
- Forgetting events prior to injury
- Forgetting events after the injury



Concussion Protocol

- Once removed for suspected head injury, athlete **MUST** be seen by a provider specializing in concussion for evaluation
- Early light activity is recommended
- Complete rest worsens recovery



Concussion Treatment

- RTP Progression is 6 steps
 - No more than 1 step/day
- Will need final physician clearance to Return to Play (Step 6)

Return to Play Progression

Start at stage ____ and progress to stage _____. Plan of care will be updated at follow-up appointment in _____.
This athlete is NOT cleared to participate in a game/competition setting until they have received a full clearance letter.

1

LIMITED ACTIVITY

OBJECTIVE: recovery

DURATION: 20-30 min

- ✓ Walking at a light pace (2-3mph on treadmill)
- ✓ Riding a stationary bike with low resistance
- ✓ Stretching

★ NO CONTACT/COLLISION, NO RESISTANCE TRAINING

2

LIGHT AEROBIC EXERCISE

OBJECTIVE: increase heart rate

DURATION: 30 min

- ✓ Walking at a medium to moderate pace
- ✓ Running at an easy pace
- ✓ Stationary bike with moderate resistance

★ NO CONTACT/COLLISION, NO RESISTANCE TRAINING

3

SPORT SPECIFIC EXERCISE

OBJECTIVE: add movement

DURATION: 30-45 min

- ✓ Walking at a brisk pace
- ✓ Running at a medium pace
- ✓ Stationary bike with moderate-high resistance

★ NO CONTACT/COLLISION, NO RESISTANCE TRAINING

4

NON-CONTACT TRAINING

OBJECTIVE: increase coordination & cognitive load

DURATION: 45-60 min

- ✓ Running at a fast pace
- ✓ Stationary bike with high resistance
- ✓ Sprinting, high exertion drills

★ NO CONTACT/COLLISION

- ✓ Non-contact sport-specific agility drills
- ✓ Sit-ups (25), push-ups (10), lunge walks (20)
- ✓ Sit-ups (30), push-ups (10), lunge walks (30)

5

FULL CONTACT PRACTICE, CONTROLLED

OBJECTIVE: restore confidence

- ✓ Participate in normal training and practice activities
- ✓ Controlled, sport-specific contact drills
- ✓ Controlled scrimmage and game simulation

6

RETURN TO PLAY

- ✓ Return to full, unrestricted contact participation and competition

Additional Comments:

For questions call 469-303-4684 and request to speak with the concussion team.

Athletes should leave evaluation with...



- Diagnosis & Prognosis
- Treatment Plan including:
 - Behavioral considerations
 - Rehabilitation plan as needed
 - Tailored academic accommodations
 - Exercise plan (type, duration, intensity)
- Return to play expectation & plan

Date of encounter (pull in from [chart](#))

Patient Name (pull in from [chart](#))

Patient DOB (pull in from [chart](#))

*Patient name was seen today at Children's Health Andrews Institute and diagnosed with a concussion. Students do not need to be symptom free to return to school but may need temporary academic adjustments. Teachers are encouraged to discuss a plan for make-up work with the student and eliminate all non-essential work during this time. **Please see the chart below as well as additional individualized recommendations listed.**

Regarding attendance, *Patient name ***.

MAXIMAL SUPPORT

- ✓ No quizzes/tests/assessments
- ✓ 50% of expected homework
- ✓ Leave class early to avoid loud passing periods
- ✓ 2-3 scheduled rest breaks as needed (nurse's office or athletic training room)
- ✓ Lunch in a quiet place
- ✓ Reduce screen exposure by 50%, pre-printed notes

MODERATE SUPPORT

- ✓ Gradually start quizzes/tests (1/day) - extra time, test in quiet room, additional accommodations as listed
- ✓ 75% of expected homework
- ✓ 1-2 scheduled rest breaks as needed
- ✓ Reduce screen exposure by 25%, pre-printed notes
- ✓ Attend all classes unless otherwise noted above

MINIMAL SUPPORT

- ✓ Tests with extra time
- ✓ 100% of expected homework, with extra time if needed
- ✓ Attend all classes, including music/electives
- ✓ 0-1 rest breaks if needed

(List of additional accommodations)

Thank you,

Cardiac Emergency Planning

- Sudden Cardiac Arrest- leading cause of death in athletes
 - Most cases in athletes are treatable
- Training of personnel – take the time!
- EAP training and accessibility
- Know where the AED is located



Cardiac Emergency Response



IN FOR MEDICAL EDUCATION AND RESEARCH. ALL RIGHTS RESERVED.

- Early recognition is key
- Drop to shock time – 3 min
- Do not delay compressions to expose chest – do it simultaneously
- Keep interruptions <10sec

Injury Prevention



Proper warm-up and cool-down (15 min each)



Encourage multi-sport participation

Injury Management

- Athletic Trainers onsite for game day can see injuries players sustained during practice
- Basic home exercises may be recommended
- ATs will determine and communicate if referral to physician or specialist is needed



Questions?



- Parents & coaches
- For help making an appointment or questions

Concierge Line: 972-816-3682

- Rings to a cell phone of Outreach Athletic Trainer