Appendix A: Different Types of Heat Illness[1]

Condition	Description	Treatment
Heat (fatigue) cramps	Painful muscle spasms/cramps that can happen during activity in hot environments. Athletes who sweat a lot may be prone to heat cramps due to fluid and electrolyte losses.	Stop exercising, massage or stretch involved muscle. Replace salt and water loss by drinking a lot of cool, salt-containing fluids. Future cramping may be reduced by improved conditioning, getting more used to exercising in hot temperatures, and drinking more salt-containing fluids.
Heat exhaustion	A type of heat illness when the body overheats leading to symptoms like excessive sweating, rapid heart rate, dizziness, faintness, fatigue, low blood pressure with standing, nausea, headache, muscle cramps.	Stop exercising, move to shaded or air-conditioned area. Replace water loss by drinking a lot of cool fluids. If the athlete does not quickly improve or is unable to drink fluids, then the athlete should be immediately taken to the nearest emergency facility.
Heat stroke	A type of heat illness that includes any of the symptoms of heat exhaustion + symptoms of confusion, disorientation, distress or loss of consciousness. Core (rectal) body temperature should be measured right away by a trained medical professional.	Call 911 or your local emergency number. Begin cooling immediately by cold water immersion technique (see below); don't wait for help to arrive. The athlete needs immediate medical attention.

Appendix B – Cold Water Immersion Tub set up and protocol[3,4,7,8]

Set-up:

- Acquire a 50-gallon tub, stock tank or kiddie pool (rubber or structural foam)
- Prior to the start of activity, half-fill with water and ice, keep additional chest coolers of ice next to tub
- Cool the water to a temperature of 35-59 degrees F

When an Athlete is in need of Cold Water Immersion:

- Remove the athlete's equipment and excess clothing
- Immerse athlete in the tub up to their neck, if possible
- Place an ice/wet towel over the head and neck
- Stir/agitate the water continuously, adding more ice throughout the cooling process
- Remove athlete from the tub and transport to the emergency room when the core (rectal) temperature reaches 102 degrees F

Appendix C--Additional Specific Sport/Activity Guidance

All sports/activities performed in a non-climate-controlled setting should follow the Wet Bulb Globe Thermometer Heat Modification Policy, however, below are some additional sport/activity guidance.

Sport-Specific Practice Guidance

Football Practices:

- WBGT **84.7 to 87.6** (ORANGE): Helmets, Shoulder Pads and Shorts only should be worn and any additional equipment (e.g. shoulder pads) should be removed for conditioning. If WBGT rises to this level during practice, players may continue to practice in football pants.
- WBGT **87.7 to 89.7** (RED): Shorts, t-shirts and footwear only for activities. No conditioning allowed.
- WBGT **89.8 or greater** **(BLACK)**: No outdoor activities, cancel or delay practices until lower WBGT is recorded.

Marching Band[5]/Cheerleading:

- WBGT **84.7 to 87.6** (ORANGE): Partial / 1/2 uniform (no long sleeves or long pants). Move practice to grassy area rather than turf or concrete.
- WBGT **87.7 to 89.7** (RED): out of uniform. Shorts, t-shirts and footwear only for activities. No conditioning allowed.
- WBGT **89.8 or greater** **(BLACK)**: No outdoor activities, cancel or delay practices until lower WBGT is recorded.

Sport Specific Competition Guidance

Football competitions:

- When kick off temperature is **87.7 to 89.7 WBGT (RED)**--A mandatory hydration break should take place at approximately the 6 min mark of the quarter of each quarter.
    - The hydration break will last 3 minutes and all players will remove their helmets and go to the sideline for a break.
    - No coaches allowed on the field.
- If kick off temperature is at or above **89.8 WBGT or greater (BLACK)**--A mandatory hydration break should take place at approximately the 4 and 8 min mark of the quarter of each quarter.
    - The hydration break will last 3 minutes and all players will remove their helmets and go to the sideline for a break.
    - No coaches allowed on the field.

Cross Country Competitions:

- When in competition and WBGT is **87.7 or greater (RED)/ (BLACK)**, at least two (2) hydration stations should be placed on the race course as well as at the finish line.

Soccer Competitions:

- When in competition and WBGT is **87.7 or greater (RED)/ (BLACK)**, referees will take a 3 minute hydration break at or near the midway point of each half.
    - Teams will go to the bench area during the hydration break, no coaches permitted on the field.

Baseball/Softball Competitions:

- When in competition and WBGT is **87.7 or greater (RED)/ (BLACK)**, umpires should have a 3 minute hydration break starting in the beginning and mid-point of inning 3 and every inning through the remainder of the contest.

Appendix D– Middle School Activities Guidelines for Outdoor/Non-Climate Controlled Settings[6]

<79.7	**Normal activities** 3 separate rest/water breaks (3-5 minutes each) / hour
79.8 -- 84.6	4 separate rest/water breaks (4-6 minutes each) / hour Monitor at-risk athletes closely Cold-water immersion available--see additional information sheet and Appendix B
84.7 --87.6	Maximum practice time is 2 hours 4 separate rest/water breaks (4-6 minutes each) / hour There must be 20 minutes of rest breaks distributed throughout each hour of practice Monitor at-risk athletes closely Cold-water immersion available--see additional information sheet and Appendix B **CONTESTS: IMPLEMENT ADDITIONAL/EXTENDED TIMEOUTS FOR REST/WATER BREAKS**
87.7 -- 89.7	Maximum practice time is 1 hour Shorts/t-shirt/footwear only for all activities No conditioning allowed There must be 20 minutes of rest breaks distributed throughout the one hour of practice Monitor at-risk athletes closely Cold-water immersion available--see additional information sheet and Appendix B **CONTESTS: IMPLEMENT ADDITIONAL/EXTENDED TIMEOUTS FOR REST/WATER BREAKS**. ***Consider delaying/postponing start times***
89.8 or >	No activities Indoor workouts permitted in air-conditioned/climate controlled facilities **CONTESTS: CANCEL CONTESTS UNTIL LOWER WBGT IS RECORDED**

Appendix E--References and Videos

Articles:

[1]American Academy of Pediatrics Definitions of Heat Illness: /https://www.aap.org/globalassets/publications/coya/exercise_related_heat_illness_final_secured.1.0.pdf

[2]NFHS Wet Bulb Globe Temperature Reading: https://www.nfhs.org/articles/wet-bulb-globe-temperature-wbgt-why-should-your-school-be-using-it/

[3]Use of Rectal Thermometry as Core Temperature Reading: https://oata.org/images/McCannRecTherm.pdf

[4]Cold Water Immersion and Heat Stroke Article: https://thesportsinstitute.com/cold-water-baths-for-heat-stroke-every-minute-counts/

[5]Marching Band Article: https://www.nfhs.org/articles/heat-illness-prevention-keep-the-marching-band-playing/

[6]American Academy of Pediatrics Policy Statement on Heat 2011, reaffirmed in 2021: https://publications.aap.org/pediatrics/article/128/3/e741/30624/Climatic-Heat-Stress-and-Exercising-Children-and

[7]American College of Sports Medicine Heat Illness Policy: https://journals.lww.com/acsm-csmr/fulltext/2023/04000/acsm_expert_consensus_statement_on_exertional_heat.10.aspx#:~:text=Identifying%20the%20athlete%20with%20suspected,sepsis)

[8]National Association of State EMS Officials-- Policy on Heat Illness: pgs 320-325 https://nasemso.org/wp-content/uploads/National-Model-EMS-Clinical-Guidelines_2022.pdf

Videos:

Wet Bulb Globe Temperature (WBGT)
KSI video on how to use the Kestrel Meter/WBGT--
https://www.youtube.com/watch?v=uABBWW1GRjM
Safe Sports Network--https://www.youtube.com/watch?v=RrtXV3U2vvo

Cold Water Immersion (CWI)
KSI/USA Football--https://www.youtube.com/watch?v=vtLIt0zKbog
TACO method of CWI--Safe Sports Network--https://www.youtube.com/watch?v=mhTvg_QUIX4

General Heat Illness Video
Safe Sports Network--https://www.youtube.com/watch?v=gbuOikV_IW0&t=0s