

DIAA WEATHER POLICY FOR ATHLETE SAFETY

HOT WEATHER CONDITIONS

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. All venues should have an emergency action plan for EHS.

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Football, especially linemen, are at greatest risk for EHS constituting 97% of all deaths, of which almost 100% occur during conditioning exercises.² While special care should be taken with lineman, all sports and positions must be individually considered when establishing heat related guidelines.. National governing bodies, such as the National Federations of High School Associations, National Collegiate Athletic Association (NCAA) 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 Delaware Interscholastic Athletic Associations' heat 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.

Recommendations

All DIAA Secondary Schools should follow the DIAA policy for any activity that does not occur in a climate-controlled facility. Documentation of heat levels should occur, at minimum, whenever the temperature reaches 80 degrees Fahrenheit.

1. The use of Wet Bulb Globe Temperature Reading (WBGT) to dictate practice/competition modification, preferably managed by a Certified Athletic Trainer should be used.
2. The ratio of workout time to time allotted for rest and hydration during times of various WBGT levels.
3. The WBGT levels which will result in practice(s) or contest(s) being modified or terminated.
4. Access to rapid cooling.
5. Conditioning should be position specific, not used as punishment, and if tested at all - tested indoors.

***WBGT**

An instrument scientifically approved to measure Wet Bulb Globe Temperature should be utilized at each practice. The Wet Bulb Globe Temperature (WBGT) is a measurement of ambient temperature, relative humidity, radiant heat from the sun and wind speed. When outdoor activities are conducted in the direct sun, the WBGT is the most pertinent to use. Although read in degrees, it does not reflect degrees of air temperature. A WBGT reading of 92 F may equate to a Heat Index reading of 104 – 105 degrees F (note: WBGT Fahrenheit reading is a different F than the temperature). WBGT readings should be taken on a turf or all weather site when applicable, a minimum of every hour, beginning 30 minutes before the beginning of practice or contest during high-risk times. All readings should be recorded or data logged (written or electronic form). In the event that a modification or cancellation was required, documentation using the WBGT *Environment Modification/Cancellation Log* should be completed (Appendix B). If the WBGT breaks, the

temperature + humidity method (heat index using zip code on weather.com) may be temporarily used, until a replacement is received.

**Rapid Cooling*

Cold-water immersion tubs or a tarp (taco/burrito method), when cold-water immersion tubs are not feasible, should be available to all venues when the WBGT reading is >85.0°F. It is recommended that a cold-water immersion tub is at least 100 gallons in size and the temperature of the water be less than 60°F. Accessibility to cooling should be within 5-10 minutes of each venue. External clothing/equipment should be removed prior to cooling or immediately after entering the tub. The water should be aggressively stirred during the cooling process.

**TREATMENT OF EXERTIONAL HEAT STROKE*

If the athletic trainer/medical staff is onsite, utilize the principle of **Cool First, Transport Second**. When cooling, use Cold Water Immersion or other approved cooling technique, until core temperature is at 103 Degrees F. If the athletic trainer/medical staff is not onsite, cool immediately until the athlete starts to shiver, or for a minimum of 20 minutes based upon the known cooling rate of 1 degree per 3 minutes. If athletic trainer/medical staff **is not** present, EMS assumes control of the EHS patient upon arrival and continues cooling for a minimum of 20 minutes or until proper rectal temperature is obtained.

At any time an athlete exhibits signs and symptoms consistent with exertional heat illness, the heat protocol must be initiated and at very minimum the athlete shall not return to play that day.

References

1. Belval L. Wet Bulb Globe Temperature Monitoring | Korey Stringer Institute. March 2015. <https://ksi.uconn.edu/prevention/wet-bulb-globe-temperature-monitoring/>. Accessed January 10, 2020.
2. Anderson, S. [https://doi: 10.1177/19417381241260045](https://doi:10.1177/19417381241260045). June 14, 2024 (online ahead of print).
3. Scarneo-miller S. Sports Medicine Policies & Procedures | Korey Stringer Institute. November 2018. <https://ksi.uconn.edu/prevention/sports-medicine-policies-procedures/>. Accessed January 10, 2020.
4. New Jersey State Interscholastic Athletic Association Heat Participation Policy. <https://www.njsiaa.org/sites/default/files/document/Heat%20Participation%20Policy%202018-19.pdf>.

WBGT Reading	Flag	Risk for Heat Illness	ACTIVITY GUIDELINES AND REST BREAK GUIDELINES
<p>Under 79.0 Degrees Fahrenheit*</p> <p>(*WBGT Fahrenheit is different from air temp Fahrenheit)</p>	Green	Very Low	Normal Activities – Provide at least 3 separate rest breaks each hour minimum duration of 5 minutes each during activity. Only if WBGT not available, <i>go to weather.com, add temp and relative humidity +/- 10 pts depending on level of acclimatization, add 5 points if not on natural grass, take sum (aka TempHum Sum). TempHum must be below 150 for this category</i>
<p>79.0 - 84.6 Degrees Fahrenheit or TempHum 145-154</p>	Yellow	Low	Temp + Hum Sum 145-154 Use discretion for intense or prolonged exercise; watch at risk players carefully; <u>For All Sports:</u> Provide <u>at least 1</u> water with rest break in the shade every 15 minutes, with a minimum duration of 5 minutes each. Temp+Hum Sum=150-159. Helmets and shoulder pads only. If index rises to this level during practice, football players may continue to work out wearing football pants without changing into shorts. Maximum length of practice 2 hours.
<p>84.7 – 87.6 Degrees Fahrenheit or TempHum 155-164</p>	Orange	Moderate	Temp + Hum Sum 155-164 <u>For Football, Lacrosse and Field Hockey:</u> All helmets and shoulder pads must be removed for practice and conditioning activities. <u>For All Sports:</u> provide at least 1 water and rest break after every 15 minutes with a minimum duration of 5 minutes each in the shade. Maximum length of practice 1.5 hours
<p>87.7-89.6 Degrees Fahrenheit or TempHum 165-169</p> <p>Practice may Only occur if QHP present</p>	Red	High	Temp + Hum 165-169 <u>For Football, Lacrosse and Field Hockey:</u> no protective equipment may be worn during practice and there may be no conditioning activities. <u>For All Sports:</u> there must be 5 minutes of water and rest breaks in the shade after every 10 minutes of play. .Maximum length of practice 1 hour under QHP supervision. Practice may only occur if Qualified Health Care Professional present Competition Limitations: Provide water/rest breaks halfway between every half, lasting 5 minutes in length, in the shade. Length of play may be shortened at the officials’ and/or Athletic Trainers discretion for health and safety.
<p>Over 89.6 Degrees Fahrenheit</p> <p>TempHum >=170</p> <p>Heat Index: Greater or equal to 170 (+/- 10</p>	Black	Very High	NO OUTDOOR ACTIVITIES. Delay until a cooler WBGT level is reached. Competition Limitations: Competition should be postponed for 30 minutes followed by another WBGT reading. The game should not resume until the WBGT reading falls below a Black Flag.

WBGT RECOMMENDED DEVICES
(if purchasing directly)

WBGT Device	Approx Price	Purchase Site
QUESTemp°34	\$3400	http://www.raeco.com/acatalog/Buy-3M-Waterless-Wet-Bulb-QUESTemp-Area-Heat-Stress-Monitor.html?gclid=Cj0KCQjw9JzoBRDjARIsAGcdlDWwVMABm5PA8XD6rdd_VA22EtLpQh2zjKFkquFXqzzMNEOvzqXXIOAaAogAEALw_wcB
Extech HT30 Heat Stress Wet Bulb Globe Temperature Meter	\$198	http://www.extech.com/HT30/
Kestrel 5400 Heat Stress Tracker	\$480	https://kestrelinstruments.com/kestrel-5400-heat-stress-tracker?gclid=EA1aIQobChMI8-GZhcy3gIVGYzICh1lcwcaEAKYASABEgKZ2vD_BwE

COLD WATER IMMERSION TUB RECOMMENDATIONS

Cold Water Immersion Tub	Price	Purchase Site
Rubbermaid Structural Foam Stock Tank; 100 gallon	\$100	https://www.tractorsupply.com/tsc/product/rubbermaid-structural-foam-stock-tanks-100-gal-capacity
Portable Transport Unit, Basic rectal thermometer	\$30; \$10	Amazon