

# Managing Heat and Heat Illness

These guidelines represent minimum standards that IHSA member schools should follow for athletic competitions. Schools with more restrictive guidelines are not expected to modify any pre-existing guidelines in order to meet this policy. These guidelines will be used by managers or their designees at all IHSA state series events when the Wet Bulb Globe Temperature (WBGT) is above 80 degrees Fahrenheit. State series tournament managers will make the decisions to suspend and resume activity in accordance with these guidelines using those devices or systems usually used at the state series venue/site.

1. Thirty minutes prior to the start of an activity, and again 60 minutes after the start of the activity, temperature and humidity readings will be taken at the site of the activity. Using a Wet Bulb Globe Thermometer is recommended, although a conversion to WBGT can be made from air temperature and relative humidity using chart 2. Record the readings in writing and maintain the information in files of the tournament manager and/or host school administration. Tournament managers may designate someone other than themselves to take these readings.

Use the Table 1 (see below) with an on-site WBGT reading for appropriate exercise modifications during exercising in the heat:

**Table 1 (all temperature readings as measured by WBGT)**

**a. ≤79.9 degrees F as measured by WBGT**

- i. All sports
  1. Provide ample amounts of water. This means that water should always be available and athletes should be able to take in as much water as they desire.
  2. Optional water breaks every 30 minutes for 10 minutes in duration. Coordinate breaks with assigned contest officials.
  3. Ice-down towels for cooling.
  4. Watch/monitor athletes carefully for necessary action.

**b. 80.0-84.5 degrees F as measured by WBGT**

- i. All sports
  1. Provide ample amounts of water. This means that water should always be available and athletes should be able to take in as much water as they desire.
  2. Optional water breaks every 30 minutes for 10 minutes in duration. Coordinate breaks with assigned contest officials.
  3. Provide cooling stations using methods such as ice towels.
  4. Watch/monitor athletes carefully for necessary action
- ii. Contact sports and activities with additional protective equipment (in addition to the above measures)
  1. Helmets and other possible equipment removed while not involved in contact.
- iii. Reduce time of outside activity. Consider postponing activity to later in the day.
- iv. Recheck air temperature and humidity every 30 minutes to monitor for increased heat conditions or sooner if personnel on the field suspects potential heat stress.

**c. 84.6-87.5 degrees F as measured by WBGT**

- i. All sports
  1. Provide ample amounts of water. This means that water should always be available and athletes should be able to take in as much water as they desire.
  2. Schedule at least 4 separate 4:00 breaks within each hour, or a 10:00 break every 30:00 of training or competition.
  3. Coordinate breaks with assigned contest officials.
  4. Have cooling stations for before, during, and after exercise/training/competition.
  5. Watch/monitor athletes carefully for necessary action
  6. Reduce time of outside activity as well as indoor activity if air conditioning is unavailable.
  7. Consider postponing activity to later in the day or another day (with approval from IHSA Administration)
  8. If practicing, maximum of 2 hours of training/practice while temperature is in this range.

- ii. Contact sports and activities with additional protective equipment (in addition to the above measures)
  - 1. Helmets and other possible equipment removed if not involved in activity or necessary for safety. If necessary for safety, suspend activity.
- iii. Recheck air temperature and humidity every 30 minutes to monitor for increased heat conditions.

**d. 87.6-89.9 degrees F as measured by WBGT**

- i. All sports
  - 1. Provide ample amounts of water. This means that water should always be available and athletes should be able to take in as much water as they desire.
  - 2. Schedule at least 4 separate 4:00 breaks within each hour, or a 10:00 break every 30:00 of training or competition.
  - 3. Coordinate breaks with assigned contest officials.
  - 4. Have cooling stations for before, during, and after exercise/training/competition.
  - 5. Watch/monitor athletes carefully for necessary action
  - 6. Reduce time of outside activity as well as indoor activity if air conditioning is unavailable.
  - 7. Consider postponing activity to later in the day or another day (with approval from IHSA Administration)
  - 8. If practicing, maximum of 1 hour of training/practice while temperature is in this range.
- ii. Contact sports and activities with additional protective equipment (in addition to the above measures)
  - 1. Helmets and other possible equipment removed if not involved in activity or necessary for safety. If necessary for safety, suspend activity.
- iii. Recheck air temperature and humidity every 30 minutes to monitor for increased heat conditions.

**e. 90 degrees F as measured by WBGT**

- i. All sports
  - 1. No training/competition
  - 2. Cancel and/or postpone activity to cooler time of the day

NOTE: While most attention will be given to outdoor sports in the fall and spring, indoor venues/facilities (gymnasiums, wrestling rooms, and swimming/diving facilities) that are not air conditioned should not be neglected for the purposes of this policy. Additionally, sometimes conditions will vary for different aspects of the same competition. For example, one part of a cross-country course may be hotter or more humid than other parts. The best course of action for managers is to take a WBGT reading at the place of the most severe conditions.

**Table 2.** Estimate WBGT from ambient temperature and relative humidity assuming full sun conditions

Wet Bulb Globe Temperature (WBGT) from Temperature and Relative Humidity																																	
Temperature in Degrees Fahrenheit																																	
	68.0	69.8	71.6	73.4	75.2	77.0	78.8	80.6	82.4	84.2	86.0	87.8	89.6	91.4	93.2	95.0	96.8	98.6	100.4	102.2	104.0	105.8	107.6	109.4	111.2	113.0	114.8	116.6	118.4	120.2	122.0		
0	59.0	60.8	60.8	62.6	64.4	64.4	66.2	66.2	68.0	68.0	69.8	71.6	71.6	73.4	73.4	75.2	75.2	77.0	77.0	78.8	80.6	80.6	82.4	82.4	84.2	84.2	86.0	87.8	87.8	89.6	89.6		
5	60.8	60.8	62.6	64.4	64.4	66.2	66.2	68.0	69.8	69.8	71.6	71.6	73.4	75.2	75.2	77.0	78.8	78.8	80.6	80.6	82.4	84.2	84.2	86.0	87.8	87.8	89.6	91.4	91.4	93.2	95.0		
10	60.8	62.6	62.6	64.4	66.2	66.2	68.0	69.8	69.8	71.6	73.4	73.4	75.2	77.0	77.0	78.8	80.6	80.6	82.4	84.2	84.2	86.0	86.0	87.8	89.6	89.6	91.4	93.2	95.0	96.8	96.8	98.6	
15	62.6	62.6	64.4	66.2	66.2	68.0	69.8	69.8	71.6	73.4	73.4	75.2	77.0	78.8	78.8	80.6	82.4	84.2	84.2	86.0	87.8	89.6	89.6	91.4	91.4	93.2	95.0	96.8	98.6	100.4	102.2		
20	62.6	64.4	64.4	66.2	68.0	69.8	69.8	71.6	73.4	75.2	75.2	77.0	78.8	80.6	80.6	82.4	84.2	86.0	87.8	89.6	89.6	91.4	93.2	95.0	96.8	98.6	100.4	102.2					
25	64.4	64.4	66.2	68.0	68.0	69.8	71.6	73.4	75.2	75.2	77.0	78.8	80.6	82.4	82.4	84.2	86.0	87.8	89.6	91.4	93.2	95.0	96.8	98.6	100.4	102.2							
30	64.4	66.2	68.0	68.0	69.8	71.6	73.4	73.4	75.2	77.0	78.8	80.6	82.4	84.2	84.2	86.0	87.8	89.6	91.4	93.2	95.0	96.8	98.6	100.4	102.2								
35	64.4	66.2	68.0	69.8	71.6	73.4	73.4	75.2	77.0	78.8	80.6	82.4	84.2	86.0	87.8	89.6	91.4	93.2	95.0	96.8	98.6	100.4	102.2										
40	66.2	68.0	69.8	69.8	71.6	73.4	75.2	77.0	78.8	80.6	82.4	84.2	86.0	87.8	89.6	91.4	93.2	95.0	96.8	98.6	100.4	102.2											
45	66.2	68.0	69.8	71.6	73.4	75.2	77.0	78.8	80.6	80.6	82.4	84.2	86.0	89.6	91.4	93.2	95.0	96.8	98.6	100.4													
50	68.0	69.8	71.6	73.4	73.4	75.2	77.0	78.8	80.6	82.4	84.2	86.0	87.8	91.4	93.2	95.0	96.8	98.6	100.4														
55	68.0	69.8	71.6	73.4	75.2	77.0	78.8	80.6	82.4	84.2	86.0	87.8	89.6	93.2	95.0	96.8	98.6	100.4															
60	69.8	71.6	73.4	75.2	77.0	78.8	80.6	82.4	84.2	86.0	87.8	89.6	91.4	95.0	96.8	98.6	100.4																
65	69.8	71.6	73.4	75.2	77.0	78.8	80.6	82.4	84.2	87.8	89.6	91.4	93.2	96.8	98.6	100.4																	
70	71.6	73.4	75.2	77.0	78.8	80.6	82.4	84.2	86.0	87.8	91.4	93.2	95.0	96.8	100.4	102.2																	
75	71.6	73.4	75.2	77.0	78.8	80.6	84.2	86.0	87.8	89.6	91.4	95.0	96.8	98.6	102.2																		
80	73.4	75.2	77.0	78.8	80.6	82.4	84.2	86.0	89.6	91.4	93.2	96.8	98.6	100.4																			
85	73.4	75.2	77.0	78.8	82.4	84.2	86.0	87.8	89.6	93.2	95.0	98.6	100.4	102.2																			
90	75.2	77.0	78.8	80.6	82.4	84.2	87.8	89.6	91.4	95.0	96.8	98.6	102.2																				
95	75.2	77.0	78.8	80.6	84.2	86.0	87.8	91.4	93.2	95.0	98.6	100.4																					
100	75.2	78.8	80.6	82.4	84.2	87.8	89.6	91.4	95.0	96.8	100.4	102.2																					

NOTE: This table is compiled from an approximate formula which only depends on temperature and humidity. The formula is valid for full sunshine and a light wind. Table adapted from Bureau of Meteorology

# Cooling Methods Due to Heat Related Illness

Exertional heat stroke (EHS) is relatively uncommon among exercise associated medical conditions, but is a frequent cause of exercise related death. The majority of evidence shows that early institution of body cooling is the most effective method of decreasing mortality in EHS. The following contains recommendations regarding the methods of body cooling, including tubs, ice bags, iced towels (towels with water that have been frozen) water, fans, and shade. The recommendations are classified as essential (foundational to the implementation of treatment, should have resources and personnel directed towards implementation), and desirable (important in maximal implementation, should have resources and personnel directed towards implementation as budget and resources allow). The recommendations are only guidelines, are not intended as a standard of care, and should not be considered as such. These guidelines should only be considered in the care of athletes who can be expected to be at risk of EHS due to the sport or the environmental situation of the activity. Sports especially at risk include football with and without equipment, soccer, and long distance track. Other sports and activities, such as cycling, golf, baseball, tennis, track and field, and band, may also be at risk due to long duration exposure to extreme environmental conditions.

It is essential that member schools and school administrators/officials:

- Establish a written plan coordinated with local EMS for emergency treatment of EHS that includes transport to a hospital and conduct drills in the implementation of the plan as practicable.
- Know how to assess environmental conditions and determine when extreme conditions exist.
- Identify a specific spot at the athletic facility that has shade.
- Have immediate access to ice and bags to contain ice.
- Have access to water, and provide water breaks as outlined in the IHSA Managing Heat and Humidity Policy.
- Know the most effective sites for application of ice to the body.
- Obtain and use, when environmental conditions are determined to be extreme, a tub or pool, filled with water and ice before activity begins, to be used in body immersion for maximal cooling, and have personnel trained in this technique.

It is desirable that member schools and school administrators/officials:

- Have a certified athletic trainer (ATC) on staff, as budget and resources allow, to develop and implement these guidelines.
- Have immediate access to water.
- Provide shade breaks.
- Provide fans when environmental conditions are determined to be extreme.
- Have close access to an air conditioned room.
- Have access to and use iced towels that can be rotated to appropriate areas of the body, including the axilla, groin, and back of the neck.

## Resources

1. *Procedure for Avoiding Heat Injury/Illness through Analysis of Heat Index and Restructuring of Activities and Recommendations for Cooling Methods Due to Heat Related Illness.* Kentucky Medical Association/Kentucky High School Athletic Association. 2010.
2. Binkley HM et al. NATA Position statement: *Exertional heat illness.* J Ath Training 2002; 37: 329-343.
3. Casa DJ et al. *Survival strategy: Acute treatment of exertional heat stroke.* J Strength Conditioning Res 2006; 20: 462.
4. Armstrong LE et al. *ACSM position stand: Exertional heat illness during training and competition.* Med Sci Sports Exerc 2007; 41: 556-572.
5. *Model Policy for Managing Heat & Humidity.* Michigan High School Athletic Association. 2013.