



ATHLETIC TRAINERS
ASSOCIATION



NAIA Championship Events Heat and Humidity Medical Policy

Scope

This policy applies to all staff members (e.g., athletic trainers, physicians, and administrators) of who are associated with NAIA Championship events, where heat and humidity pose a health risk during NAIA Championship.⁵

Monitoring

1. Monitoring of student-athletes safety should be continuous during NAIA Championship events.⁴
2. Athletic trainers, coaches, administrators and other athletics personnel should be educated annually on the signs and symptoms of exertional heat illness.⁴

Environmental Monitoring and Activity Modification/Cancellation

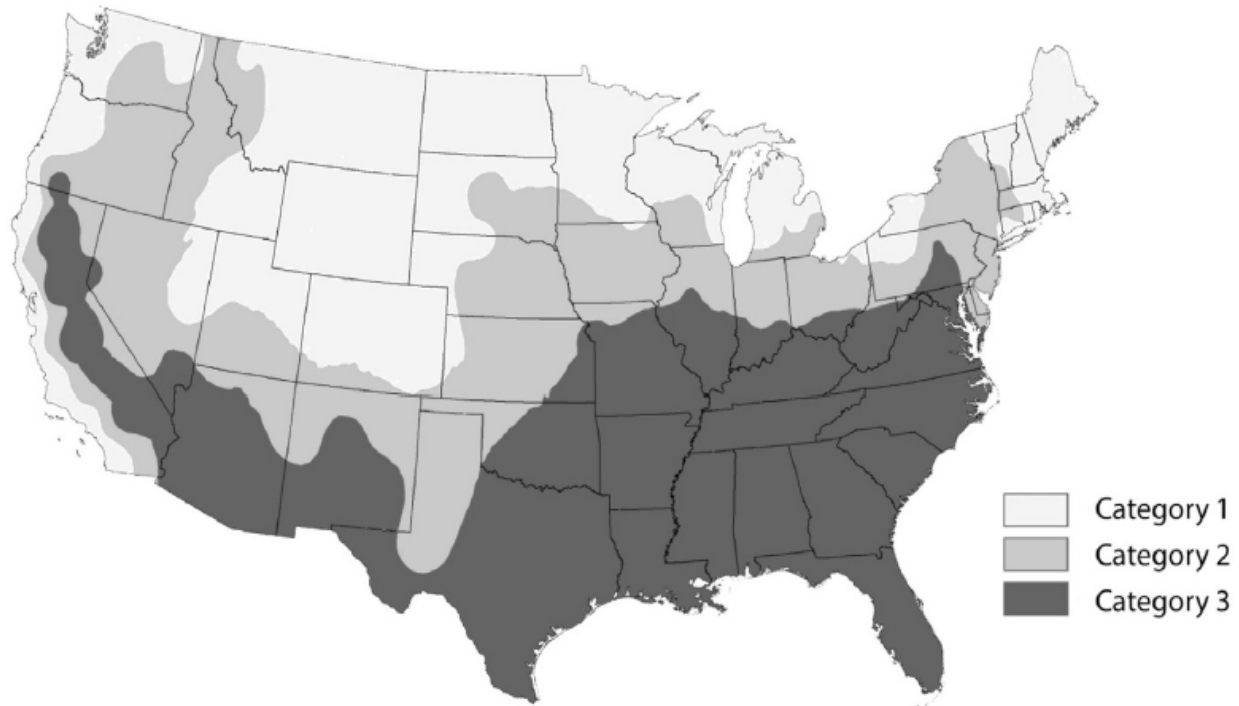
1. Environmental monitoring is multifaceted and will include utilizing a heat stress monitoring device, in conjunction with the Bureau of Meteorology Wet-Bulb Globe Temperature and Relative Humidity Chart (see *Appendix B*)¹.
2. Environmental monitoring will occur any time it is warm outside (i.e. over 70° F).⁴
3. Environmental monitoring and activity modifications may be necessary for certain types of indoor facilities.
4. Monitoring of WBGT will occur every 30 minutes beginning at least 30 minutes prior to the scheduled Championship event, under the direction of the Host Medical Director and will include a **qualified healthcare professional** (QHP - i.e. certified athletic trainer, team physician, etc.).⁴
5. Modifications will be made in accordance with the best practice guidelines for each regional category.
 - a. *Regional categories identifying the location of championships can be seen in Figure 1.*²
 - b. *Figure 2 (below)^{2,4,6} delineates the specific modifications that may be made for each colored flag zone. Each color represents a different level of risk:*
 - *Green: Minimal risk*
 - *Yellow: Moderate risk – be attentive of changing conditions*
 - *Orange: Risk is increasing thereby requiring increased monitoring of environmental conditions*
 - *Red: Modifications to activity are suggested based on the type and demands of the sport*
 - *Black: Activity should be stopped until environmental conditions improve*

Within each flag zone, modifications may be made for each sport category defined below.

- i. *Equipment Intensive Sports- Defined as wearing protective equipment as required by the sport's rules and regulations that limit the body's natural evaporation of body heat (i.e. Football, Men's Lacrosse).*
- ii. *Time-Restricted/Dependent Endurance Sports- Defined as endurance sports that are required by the sport's rules and regulations to be time-restricted by periods, halves, time-outs, match breaks, etc. (i.e. Men's & Women's Soccer, Women's Lacrosse, Men's & Women's Tennis).*

- iii. *Endurance Sports- Defined as an endurance sport that, per sport’s rules and regulations, once started cannot be paused due to nature of the sport.*
 - iv. *Anaerobic Sports- Defined as any sport, per sport’s rules and regulations that naturally has frequent periods of rest and opportunities for hydration.*
6. 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 changing environmental conditions.⁴

FIGURE 1: Regional Categorization of risk zones based on heat and humidity typical in identified zones.



Guidelines/Recommendations for Hydration and Rest Breaks

1. Rest time should involve both unlimited hydration (water or electrolyte drinks) and rest without any activity involved.⁵
2. For equipment intensive sports, helmets should be removed during rest time.⁵
3. Recommended that the site for the rest should be in a “cooling zone” and not in direct sunlight.⁵
4. When the WBGT reading is greater than 86°F (30°C) it is recommended:
 - a. Ice towels be available at the “cooling zone”.⁵
 - b. Access to cooling mechanisms (shower, cold tub, ice, etc.) must be available for the benefit of any player showing early signs of heat illness.⁵

FIGURE 2: Activity Guidelines based on WBGT readings

Cat 3	Cat 2	Cat 1	Activity Guidelines
< 82.0	< 79.7	< 76.1	Activities proceed as normal, per sport regulations.
82.0 – 86.9*	79.8 - 84.6	76.2 - 81.0	Use discretion for intense or prolonged exercise.
87.0 – 90.0	84.7 - 87.6*	81.1 – 84.0	For Equipment Intensive Sports: The transition times following the 1st and 3rd quarters should be extended 2 minutes. Water should be allowed on the field and helmets to be removed for all play stoppage (i.e. injuries, measurements, etc.). Additional breaks are to be left to the discretion of the game officials, coaches, and medical staff collectively. Ice towels can be available. For Time-Restricted Endurance Sports: All other sports, add hydration breaks will be left to discretion of the game officials and medical staff, collectively prior to the start of the game. For Endurance Sports: Water and sports drinks will be provided at the start/finish lines of the event, at least 1 hour prior to the start to the event. Cooling tubs will be available. For Anaerobic Sports: Addition of water breaks will be left to discretion of the officials/umpires and medical staff, collectively prior to the start of the game.
90.1 – 91.9	87.7 - 89.6	84.1 - 86.0*	For Equipment Intensive Sports: A 5-10 minute break after the first possession change and at the halfway point of each quarter shall be utilized. Timeouts and the transition times following the 1st and 3rd quarters should be extended. Water should be allowed on the field and helmets to be removed for all play stoppage (i.e. injuries, measurements, etc.). Ice towels can be available. For Time-Restricted Endurance Sports: A 5-10 minute water break will be between the 20-25 minute mark of each half, when there is a stoppage of play and at the discretion of the head referee. Ice towels can be available. For Endurance Sports: Water and sports drinks will be provided at the start/finishlines of the event, at least 1 hour prior to the start to the event. Cooling tubs will be available. Shaded tents and/or ability to cool in an air-conditioned facility is recommended. For Anaerobic Sports: Water and if available, sports drinks in each dugout. Ice towels can be available
≥ 92.0	≥ 89.7	≥ 86.1	No outdoor events, delay competition until WBGT decreases into a colored category.

*Soccer specifically, when the WBGT reaches 86 degrees, or higher, hydration breaks must be inserted at the 25-30 minute mark & hydration breaks at the 70-75 minute mark for a minimum of 2 minutes each. Reference the NAIA Men's and Women's Soccer Official Rules at https://naia.arbitersports.com/Groups/109470/Library/files/MWSOPR_2019_Rules_Interpretations_Hydration_Breaks_082719.pdf

Resources

1

Title: Wet Bulb Globe Temperature from Temperature and Relative Humidity

Authors: Bureau of Meteorology

Objective: To provide a measure of how hot it feels to the average person when relative humidity is factored in with actual air temperature.

Design: N/A

Findings: N/A

Direct Link: <https://www.dtn.com/forget-heat-index-wet-bulb-globe-temperature-is-where-its-at/>

2

Title: Regional Heat Safety Thresholds for Athletes in Contiguous States

Authors: Grundstein, Andrew; Williams, Castle; Phan, Minh; Cooper, Earl

Objective: To develop regional heat safety categories for athletic activity that use relative thresholds of WGBT to account for local acclimatization.

Design: Cross-Sectional

Findings: Through the gathering of nationwide WGBT measurements, this study was able to utilize the ACSM's WGBT and activity restriction recommendations for athletics and formulate a nationwide map of three specific regions. This guideline regionalizes the United States, and formulates new activity guidelines based on the average WGBT readings in those specific categories.

Direct Link: https://ksi.uconn.edu/wp-content/uploads/sites/1222/2018/08/RegionalWGBT_2015_AppliedGeography.pdf

3

Title: NATA Position Statement: Exertional Heat Illnesses

Authors: Casa, Douglas; DeMartini, Julie; Bergeron, Michael; Csillan, Dave; Eichner, Randy; et. Al.

Objective: To present best-practice recommendations for the prevention, recognition, and treatment of exertional heat illnesses (EHIs) and to describe the relevant physiology of thermoregulation.

Design: Review

Findings: Utilize recommendations to establish onsite emergency action plans for their venues and athletes. Through the use of appropriate prevention strategies, proper recognition tactics, and effective treatment plans for EHIs. This statement was primarily used for acclimatization recommendations.

Direct Link: <https://www.nata.org/sites/default/files/externalheatillnesses.pdf>

Title: Sports Medicine Policies and Procedures: Exertional Heat Illness Template Policies & Procedures

Authors: Korey Stringer Institute, University of Connecticut

Objective: To assist with the preliminary drafting of policies and procedures to assist organizations in the communication of outcomes to employees, clarify roles and responsibilities, and set a foundation for the delivery of safe and effective healthcare.

Design: N/A

Findings: N/A

Direct Link: <https://ksi.uconn.edu/prevention/sports-medicine-policies-procedures/>

Title: BOC Guiding Principles for AT Policy and Procedures Development

Authors: Board of Certification

Objective: To provide drafting recommendations for policies and procedures for specific medical and environmental conditions to assist schools and organizations with documenting the communication outcomes for employees, and delineate roles and designate responsibilities.

Design: N/A

Findings: N/A

Direct Link:

https://www.bocatc.org/system/comfy/cms/files/files/000/000/529/original/Guiding_Principles_for_AT_Policies_and_Procedures.pdf

Title: Andrews Institute Heat Safety Guidelines 2018-2019

Authors: Andrews Institute Orthopaedics & Sports Medicine; Lowery, Jeremy

Objective: To maximize the safety of all student-athletes, coaches, and spectators under the care of Andrews Institute Sports Medicine Outreach Staff by providing a comprehensive, cohesive, and consistent strategy for preventing and managing heat illnesses during practice and competition.

Design: N/A

Findings: N/A

Direct Link: https://okaloosaschools.com/files/_site/dept/athletics/heat-policy-2018.pdf

Definitions

- **Acclimatization** – The process of gradually increasing the intensity of activity in a progressive manner to ensure the body’s physiological adaptation to tolerate exercise in the heat. Individuals must maintain adequate hydration.⁵
- **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.⁵
- **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.⁵
- **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.⁵
- **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.”⁵

Reference Chart for Heat Index:

Provided and developed by the National Weather Service and the National Oceanic Atmospheric Association. Recommended to utilize the below Heat Index Chart in the case that a WGBT is unavailable.

Appendix B:

		Wet Bulb Globe Temperature (WGBT) from Temperature and Relative Humidity																														
		Temperature in Degrees Fahrenheit																														
Relative Humidity (%)		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	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100	105	110	115	120	125	130	135	140	145	150
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	123.8	125.6
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	123.8	125.6	127.4
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	123.8	125.6	127.4	129.2
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	123.8	125.6	127.4	129.2	131.0
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	123.8	125.6	127.4	129.2	131.0	132.8
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	123.8	125.6	127.4	129.2	131.0	132.8	134.6
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	123.8	125.6	127.4	129.2	131.0	132.8	134.6	136.4
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	123.8	125.6	127.4	129.2	131.0	132.8	134.6	136.4	138.2
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	123.8	125.6	127.4	129.2	131.0	132.8	134.6	136.4	138.2	140.0
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	123.8	125.6	127.4	129.2	131.0	132.8	134.6	136.4	138.2	140.0	141.8
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	123.8	125.6	127.4	129.2	131.0	132.8	134.6	136.4	138.2	140.0	141.8	143.6
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	123.8	125.6	127.4	129.2	131.0	132.8	134.6	136.4	138.2	140.0	141.8	143.6	145.4
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	123.8	125.6	127.4	129.2	131.0	132.8	134.6	136.4	138.2	140.0	141.8	143.6	145.4	147.2
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	123.8	125.6	127.4	129.2	131.0	132.8	134.6	136.4	138.2	140.0	141.8	143.6	145.4	147.2	149.0
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	123.8	125.6	127.4	129.2	131.0	132.8	134.6	136.4	138.2	140.0	141.8	143.6	145.4	147.2	149.0	150.8
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	123.8	125.6	127.4	129.2	131.0	132.8	134.6	136.4	138.2	140.0	141.8	143.6	145.4	147.2	149.0	150.8	152.6
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	123.8	125.6	127.4	129.2	131.0	132.8	134.6	136.4	138.2	140.0	141.8	143.6	145.4	147.2	149.0	150.8	152.6	154.4
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	123.8	125.6	127.4	129.2	131.0	132.8	134.6	136.4	138.2	140.0	141.8	143.6	145.4	147.2	149.0	150.8	152.6	154.4	156.2
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	123.8	125.6	127.4	129.2	131.0	132.8	134.6	136.4	138.2	140.0	141.8	143.6	145.4	147.2	149.0	150.8	152.6	154.4	156.2	158.0

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 for Bureau of Meteorology

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