



# Protect your players

with vital Wet Bulb Globe Temperature information

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**Dtn**<sup>o</sup>



# Heat & sports

Heat stress is a real, very common threat to athletes — and a significant safety issue for their trainers, coaches, and managers.

Professional sport organizations — including the National Collegiate Athletic Association (NCAA) and the National Athletic Trainers Association (NATA) — recommend safety protocols based on Wet Bulb Globe Temperature thresholds. Some state high school associations even fine those who do not comply with such protocols.

Read on to learn more about this important threat and how it can be best managed with Wet Bulb Globe Temperature technology.



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# The dangers of extreme heat and humidity

Heat is a major killer. It pushes the human body beyond its limits.

In extreme heat and high humidity, evaporation is slowed and the body must work extra hard to maintain a normal temperature. Despite their level of physical fitness, for athletes engaged in physical activity, the risks are magnified.



97

**The number of people, on average, that heat kills each year in the United States.**

Source: NOAA Office of Climate, Water, and Weather Services



# Heat-related illness

While fatalities are the primary concern, heat-related illness is extremely common — and preventable.

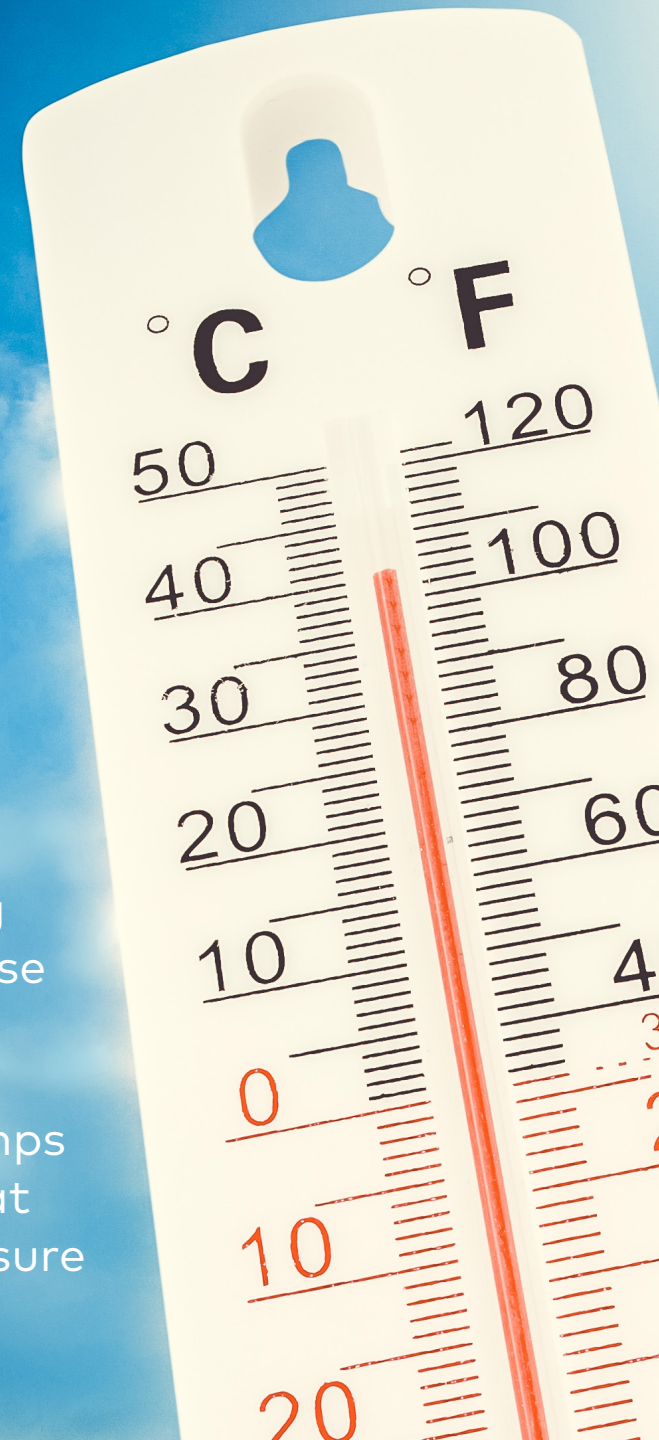
Even with immediate treatment, heat-related illness can have long-term effects, including liver, kidney, muscle, or heart damage.

Thus, prevention is key. Wet Bulb Globe Temperature gives more information than temperature or heat index alone, and can help determine your best course of action.

## Signs include...

- Nausea
- Headache
- Faintness
- Dizziness
- Fatigue
- Heavy sweating
- Weak, rapid pulse
- Muscle cramps
- Cool, moist skin with goose bumps when in the heat
- Low blood pressure upon standing

Source: Mayo Clinic



# What is Wet Bulb Globe Temperature?

Wet Bulb Globe Temperature is a composite temperature indicator used to determine the true impact of hot weather on people.

## It is calculated using...



Temperature



Humidity



Wind  
speed



Solar  
radiation

It is a more comprehensive and reliable measure of the impact on the human body than the heat index or 'feels-like factor' — which reflects just air temperature and relative humidity, and is also measured in the shade.

## Did you know?

Wet Bulb Globe Temperature was first developed in 1956 by the U.S. military to reduce heat stress injuries in recruits.



# Wet Bulb Globe Temperature vs. the heat index

	WBGT	Heat Index
Measured in the sun	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Measured in the shade	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Uses temperature	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Uses relative humidity	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Uses wind	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Uses cloud cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Uses sun angle	<input checked="" type="checkbox"/>	<input type="checkbox"/>





# Best practices and recommendations

Adopt a heat policy and consider using Wet Bulb Globe Temperature information to support your daily decisions. It will provide you with better insight into the weather's impact on your athletes.



## Things to consider...



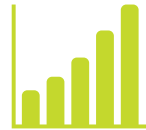
Best practice times:  
6-9 a.m.  
6-9 p.m.



Practice duration:  
Less than three hours



Take it slow:  
The first 3 weeks of August pose the greatest risk



Ease into it:  
Build up to full equipment & intensity



Drink up:  
Keep players well hydrated



The Georgia Board of Athletics' statewide policy uses Wet Bulb Globe Temperature to keep athletes safe. Readings are expected to be taken every hour — beginning 30 minutes BEFORE the start of practice. They also use the guidelines shown on the next page.



# NATA Wet Bulb Globe Temperature guidelines

WBGT reading	Activity & rest break guidelines
Under 82.0	Normal activities. Provide at least three separate rest breaks each hour, a minimum of three minutes each, during the workout.
82.0-86.9	Use discretion for intense or prolonged exercise. Watch at-risk players carefully. Provide at least three separate rest breaks each hour, a minimum of four minutes each.
87.0-89.9	<p>Maximum practice time is two hours. For football: players restricted to helmet, shoulder pads, and shorts during practice. All protective equipment must be removed for conditioning activities.</p> <p>For all sports: provide at least four separate rest breaks each hour, a minimum of four minutes each.</p>
90.0-92.0	Maximum length of practice is one hour. No protective equipment may be worn during practice and there may be no conditioning activities. There must be 20 minutes of rest breaks provided during the hour of practice.
Over 92.1	No outdoor workouts. Cancel exercise. Delay practices until a cooler WBGT reading occurs.

# Creating your heat safety plan

Here are some things to consider when creating your own heat safety plan...

## Things to consider...



Make your guidelines region specific



Account for the time of year & athlete acclimatization



Consider the level & duration of workouts



Understand & use Wet Bulb Globe Temperature



Acquire the proper tools to monitor conditions



# How can I get Wet Bulb Globe Temperature insight?

While there are dedicated sensors for determining Wet Bulb Globe Temperature, they are expensive and single-purpose — meaning they do not provide any additional value beyond the current reading.

Our popular WeatherSentry® service includes critical Wet Bulb Globe Temperature insight for any location — based on scientific calculations. In addition, it delivers robust weather alerts, cutting-edge lightning management tools, and exclusive online consultations with our staff of degreed meteorologists — all for greater peace of mind when making play/delay decisions.

Learn more at [www.dtn.com/sports](http://www.dtn.com/sports)

## WeatherSentry offers:

- Current readings for Wet Bulb Globe Temperature

- Local forecasts for Wet Bulb Globe Temperature

- Custom alerts for Wet Bulb Globe Temperature

# About DTN

At DTN, our mission is to empower you and your team with intelligent, actionable insights that make sense of the data for you. We are the trusted partner, an independent source of information that helps thousands of organizations feed, fuel, and protect the world.

We offer the most comprehensive weather expertise available. Our teams of forecasters are dedicated to working with our sports, public safety, and events customers. This layer of expertise and focus ensures that you have the real-time information you need to quickly make decisions to issue alerts and activate evacuation plans when necessary.

Our meteorologists work hand-in-hand with you — either on-site or from our offices — with a clear view of your location and the weather. With the best lightning detection networks, more than 50 actionable alerts, and the industry-leading Wet Bulb Globe Temperature updates, we help keep events, activities, and municipalities running smoothly and safely. Our location-specific data gives you all the information you need to make safety and business decisions with confidence.





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