Mid-Suburban League Weather Policy

Excessive Heat

These guidelines represent minimum standards that Mid-Suburban League member schools should follow for athletic competitions and practices when the Wet Bulb Globe Temperature (WBGT) is above 80 degrees Fahrenheit. The IHSA officials and administration, in conjunction with the head athletic trainer, will make the decision to suspend and resume activity for practices and non-state series contests. State series tournament managers will make the decisions to suspend and resume activity in accordance with the IHSA guidelines using those devices or systems usually used at the state series venue/site.

When the weather forecast indicates elevated temperatures, the athletic trainer will take WBGT readings thirty minutes prior to the start of a game or thirty minutes prior to the start of the day's activities. Once the initial reading is taken, WBGT readings will be taken every 60 minutes until it has been determined the WBGT readings are below the yellow zone.

Minimum restrictions for athletic activity will be established thirty minutes prior to the start of activity. Readings will be recorded in writing and the records will be maintained within the athletics department. Use Table 1 (see below) with an on-site WBGT reading for appropriate exercise modifications during all indoor and outdoor athletic activities.

Table 1

A. ≤79.9 degrees F (GREEN ZONE)

i. All sports

1. 1. 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. Watch/monitor athletes carefully for necessary action.

B. 80.0-84.5 degrees F (YELLOW ZONE)

i. All sports

1. 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. A cooling station (ice towels, shaded areas, etc.) will be made available. Cold Water Immersion must be available.
4. Watch/monitor athletes carefully for necessary action

ii. Contact sports and activities with additional protective equipment (in addition to the above measures)

1. Protective equipment is removed when not necessary for safety (helmets, shoulder pads, or catching gear).

iii. Reduce time of inside and outside activity. Consider postponing activity to later in the day.

iv. 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.

C. 84.6-87.5 degrees F (ORANGE ZONE)

i. All sports

1. Contests may conclude if the temperature move to orange mid-game with required breaks. **No new contest may be started if the temperature is in this range.**
2. Water should always be available and athletes should be able to take in as much water as they desire.
3. Coaches and officials are encouraged to take a 10:00 break every 30:00 of training or competition.

4. A cooling station (ice towels, shaded areas, etc.) will be made available for before, during, and after exercise/training/competition. Cold Water Immersion must be available.
5. Watch/monitor athletes carefully for necessary action
6. If practicing, maximum of 2 hours of training/practice including all breaks from original start time even if WBGT drops below 84.6.

ii. Contact sports and activities with additional protective equipment (in addition to the above measures)

1. For Practices: Protective equipment is removed when not necessary for safety (helmets, shoulder pads, or catching gear). Football and lacrosse are permitted a maximum of helmet, shoulder pads, and protective gloves. If additional equipment is necessary for safety, suspend activity.
2. For Contests: Helmets and other protective equipment removed if not involved in activity or necessary for safety. If necessary for safety, suspend activity.

iii. 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.

D. 87.6-89.9 degrees F (RED ZONE)

i. All sports

1. Per Orange Zone protocol, **no new contests can be started if the temperature is in this range.**
2. Water should always be available and athletes should be able to take in as much water as they desire.
3. Coaches and officials are encouraged to take a 10:00 break every 30:00 of training or competition.
4. A cooling station (ice towels, shaded areas, etc.) will be made available for before, during, and after exercise/training/competition. Cold Water Immersion must be available.
5. Watch/monitor athletes carefully for necessary action
6. Maximum of 1 hour of training/practice while temperature is in this range from the original start time even if the WBGT drops below 87.6

ii. Contact sports and activities with additional protective equipment (in addition to the above measures)

1. For Practices: No protective equipment may be worn during practice, and there may be no conditioning activities.
2. For contests already started: Helmets and other protective equipment removed if not involved in activity or necessary for safety.
3. If necessary for safety, consider postponing games or practices to a cooler time of day.

iii. Recheck air temperature and humidity every 30 minutes to monitor for increased heat conditions.

E. ≥90 degrees F (BLACK ZONE)

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 or practice. For example, one part of a cross-country course may be hotter or more humid than other parts. The best course of action for certified athletic trainers and managers is to take a WBGT reading at the place of the most severe conditions.

Treatment of Exertional Heat Stroke and Cold—Water Immersion

The current best practice for the treatment of exertional heat stroke is rapid whole-body cooling via Cold Water Immersion (CWI) on site followed by transport to advanced medical care (cool first transport second). If whole-body CWI is not readily available, alternate evidence-based whole-body cooling techniques can be utilized (e.g. TACO method). The best practices shall be carried out by a licensed athletic trainer, designated healthcare provider, or EMS provider. In the event that these medical providers are not available and heat illness is suspected, cooling should be initiated until advanced medical personnel arrives. The cooling modality shall be ready for immediate use when WBGT is at or above 80F. At WBGT below 80F the cooling modality should be readily available.

Excessive Cold

Cold exposure can be uncomfortable, impair performance and even become life threatening. Conditions created by cold exposure include frostbite and hypothermia. Wind chill can make activity uncomfortable and can impair performance when muscle temperature declines. Frostbite is the freezing of superficial tissues, usually of the face, ears, fingers, and toes. Hypothermia, a significant drop in body temperature, occurs with rapid cooling, exhaustion and energy depletion. The resulting failure to the temperature-regulating mechanisms constitutes a medical emergency.

WBGT Temperature

Hypothermia frequently occurs at temperatures above freezing. A wet and windy 30-50 degree exposure may be as serious as a subzero exposure. For this reason, the Mid-Suburban League has developed a cold policy using the Wet Bulb Globe temperature not the ambient temperature. The WetBulb Globe Temperature (WBGT) is a measure of the temperature in direct sunlight, which takes into account: temperature, humidity, wind speed, sun angle and cloud cover (solar radiation). Wind Chill only takes into account two variables - temperature and wind speed, while the Apparent Temperature measures only temperature and humidity.

Clothing is one of the most important parts of keeping the athlete's body warm. Athletes should dress in layers and try and stay dry. Layers can be added or removed depending on temperature, activity and wind chill. Athletes should layer themselves with wicking fabric next to the body, followed by lightweight pile or wool layers for warmth. Athletes should use a wind block garment to avoid wind chill during workouts. Heat loss from the head and neck may be as much as 50% of total heat loss; therefore the head and neck should be covered during cold conditions. Other extremities should be covered at all times to protect from the wind chill.

Cold Exposure:

- Breathing of cold air can trigger asthma attack (bronchospasm)
- Coughing, chest tightness, burning sensation in throat and nasal passage
- Reduction of strength, power, endurance, and aerobic activity
- Core body temperature reduction, causing reduction of motor output

Cold Recognition:

- Shivering, a means for the body to generate heat
- Excessive shivering contributes to fatigue, loss of motor skills
- Numbness and pain in fingers, toes, ears, and exposed facial tissue
- Drop in core temperature; athlete exhibits sluggishness, slowed speech, disoriented

Precipitation

In addition to WBGT temperature, the cold policy also creates a differentiation between days with precipitation and dry days. Wind speed interacts with ambient temperature to significantly increase body cooling. When the body and clothing are wet (whether from sweat, rain, snow, or immersion), the cooling is even more pronounced due to evaporation of the water held close to the skin by the wet clothing.

Type of Activity

A third factor in the cold policy is the type of activity that is taking place. Activities are divided into two categories; Continuous Movement (CM) and Non-Continuous Movement (NCM). Continuous Movement activities are cross-country, football, lacrosse, soccer, and tennis. Non-Continuous Movement (NCM) activities are baseball, golf, softball, and track. Generally, while engaging in CM activities, because of the nature of the activity, more body heat is created. In NCM activities, the amount of movement is decreased therefore less body heat is created.

WBGT Temperature	Practice Limitations	Game Limitations
40 Degrees to 32 Degrees without precipitation	No Restrictions	CM games as scheduled, NCM games are canceled but can be played with mutual AD consent
40 Degrees to 32 Degrees with precipitation	Practices limited to 2 hours	Consider canceling CM games if precipitation is not a field factor with mutual AD consent, cancel NCM games
Below 32 Degrees to 15 Degrees without precipitation	Practices limited to 2 hours	CM games can be played with AD consent, cancel NCM games
Below 32 Degrees to 15 Degrees with precipitation	Practices limited to 1 hour	CM games can be played with AD consent, cancel NCM games
Below 15 Degrees without precipitation	Practices limited to 1 hour, rewarm every 15 minutes	Cancel games
Below 15 Degrees with precipitation	No outside practices	Cancel games
Below 5 Degrees	No outside activities	Cancel games

Continuous Movement (CM) cross-country, football, lacrosse, soccer, and tennis
Non-Continuous Movement (NCM) baseball, golf, softball, and track

Protocol for Determining the WBGT Temperature
For the purposes of establishing temperature activity restrictions, WBGT readings will be taken on three different surfaces at the school site—grass, turf, and tennis courts. Decisions about play will be made separately for each surface based on that surface's WBGT reading. If a team is practicing or competing at the school's off-site facility (ex. golf or cross-country), the WBGT temperature taken on the grass surface at the school will be used to determine temperature activity restrictions at the off-site location.

The athletic trainer will take WBGT readings thirty minutes prior to the start of a game or thirty minutes prior to the start of the day's activities. Once the initial reading is taken, WBGT readings will be taken every 60 minutes until it has been determined the WBGT readings are below the yellow zone.

When monitoring the weather with a handheld heat stress monitor the licensed athletic trainer will note the WBGT every 30 seconds for five minutes. The certified athletic trainer will average the ten readings and use that final number to identify which activity restriction zone the current conditions fall under.

District administration will determine an alternate way to obtain a WBGT reading when an athletic trainer is unavailable to determine a WBGT temperature (ex. summer baseball game) or if the school's WBGT is broken or malfunctioning. The alternate reading will be used only when a WBGT reading obtained by the school's athletic trainer is **not** available. *It will not be used as a basis for making activity restrictions that are in contradiction to the WBGT temperature obtained by the athletic trainer.*

Severe Weather (Lightning or Tornado)

In conjunction with the IHSA and the Mid Suburban League has developed the following guidelines for severe weather situations. A copy of the IHSA Severe Weather Safety Guidelines can be found on their website.

In order to determine if conditions are safe to play during the potential of severe weather, coaches and administrators must rely on multiple data; Thor Guard, lightning detection system, Weather Sentry, sight, and sound.

SEVERE WEATHER PLAN

1. The athletic director shall monitor local weather conditions before and during practices and contests
2. If warranted, by a Thor Guard or lightning detection alert, seeing a lightening ground strike, or hearing thunder; evacuate all spectators and athletes to indoor shelter. *Due to the possibility of electrocution by a direct lightning strike, the pool and pool area shall be treated in the same manner as an outside area and should be evacuated during severe weather incidents.*
    a. A designated safer place is a substantial building with plumbing and wiring where people live or work, such as a school, gymnasium or library. An alternate safer place from the threat of lightening is a fully enclosed (not convertible or soft top) metal car or school bus.
3. Suspension and resumption of play
    a. When the Thor Guard or lightning detection system sounds an alert, suspend play until the Thor Guard or lightning detection system signals the "All Clear" and vacate the outdoor activity to a designated safer location immediately.
    b. When thunder is heard, or lightning is seen*, the leading edge of the thunderstorm is close enough to strike your location with lightening. Suspend play for at least 30 minutes and vacate the outdoor activity to the designated safer location immediately.
        i. 30 minutes rule. Once play has been suspended, wait at least 30 minutes after the last thunder is heard or lightning is witnessed* prior to resuming play.
        ii. Any subsequent thunder or lightning* after the beginning of the 30-minute count will reset the clock and another 30-minute count should begin.
        iii. Thor Guard and Weather Sentry should be used to assist in making a decision to suspend play if a lightning strike is noted to be within 10 miles of the event location. However, you should never depend on the reliability of these devices and, thus, hearing thunder or seeing lightning* should always take precedence over information from a mobile app or lightning-prediction device.
    c. If the local tornado system should sound, vacate the outdoor activity to a designated safer location immediately.
4. The athletic director will review this procedure annually with all administrators, coaches and game personnel and train all personnel.
5. The athletic director will inform student-athletes and their parents of the lightning policy at start of the season.

*- At night, under certain atmospheric conditions, lightning flashes may be seen from distant storms. In these cases, it may be safe to continue an event. If no thunder can be heard and the flashes are low on the horizon, the storm may not pose a threat. Independently verified lightning detection information, Weather Sentry or Thor Guard, should be consulted to further evaluate potential hazards from storms.

Safe Areas: All personnel, athletes and spectators should be clearly informed of available safe structures or shelters in the event a thunderstorm approaches. A safe structure is any fully enclosed building frequently used by people. In absence of that – athletes and spectators should go to any vehicle with a hard metal roof. Roll up the windows and do not touch the sides of the vehicle. If no safe structure or vehicle is available, find a thick grove of small trees surrounded by taller trees or a dry ditch. Assume a crouched position on the ground with only the balls of your feet touching the ground. Wrap your arms around your knees and lower your head. Minimize contact to the ground since lightning often travels through the ground.

Avoid: Tall trees or objects like light poles or flagpoles, individual trees, standing pools of water and open fields. Also avoid being the highest object on the field. Do not take shelter under trees. Avoid bathrooms if another building is available, and do not use a land-line telephone. A cellular phone or portable phone is a safe alternative if in a secure shelter or vehicle.

Resuming Activity: Everyone should wait at least 30 minutes after the last flash of lightning or sound of thunder or the Thor Guard/lightening detection signals "All Clear" before returning to the field or activity.

TORNADO ACTION PLAN

Once a warning is issued, either through an audible siren or on the FEMA Wireless Alert:

1. The athletic director or coach will direct individuals to seek shelter indoors in areas identified within the building as safe to shelter-in-place.
2. Safe areas are interior rooms or hallways, free of windows, and should ideally have a second story above them.
3. Athletes and spectators should remain in the shelter-in-place locations and the outdoor conditions should be monitored via the internet or local television.
4. Once the conditions are determined to be safe, resumption of activities can take place.

Lightning

All Mid Suburban League schools are equipped with a Thor Guard or lightning detection system. Commonly, Thor Guard is incorrectly referred to as a lightning detector. In addition to lightning detection, Thor Guard is also a lightening prediction system. Detection technology is based on electromagnetic (EMF) disruptions in our atmosphere, or what we would recognize as "static" on our AM radio dial. This technology can determine the distance between your location and the location of a lightning strike that has already occurred. Both Thor Guard and lightening detection systems can see lightning strikes in your region. In addition to detecting lightning strikes, Thor Guard constantly monitors the ongoing increases or decreases in intensity of the EMF to generate a prediction of lightning occurring in your immediate area (typically within a 2-2.5 mile radius). Thor Guard will detect lightning strikes that have occurred and attempt to predict potential strikes in the future.

If the Thor Guard or lightning detection system goes into Red Alert a warning will sound. The athletic fields and spectators are to be cleared immediately. All athletes and spectators will be directed to take shelter indoors immediately. It the Thor Guard in in Yellow, warning mode, an alarm will not sound but coaches and administrators should consult the Weather Sentry weather application to monitor potential severe weather conditions.

When thunder is heard, or a cloud–to-ground lightning bolt is seen, the thunderstorm is close enough to strike your location with lightning. The athletic fields and spectators are to be cleared immediately. All athletes and spectators will be directed to take shelter indoors immediately.

At night, under certain atmospheric conditions, lightning flashes may be seen from distant storms. In these cases, if the Thor Guard has not alerted, it may be safe to continue an event. **If no thunder can be heard and the flashes are low on the horizon, the storm may not pose a threat. Independently verified lightning detection and prediction information, Weather Sentry, Thor Guard or lightning detection system, should be consulted to further evaluate potential hazards from storms.**

Tornado

WARNING SYSTEMS

Tornadoes and severe thunderstorms can develop quickly, so an important component of a severe weather plan is a reliable warning system. Warnings are disseminated through outdoor warning sirens, local television and radio stations, cable television systems, cell phone apps, and NOAA weather radio. Find out how all these systems work and which are available to you.

Public Warning Sirens are used in many towns to warn people of tornadoes. However, rural areas and smaller towns do not have them. If your community does have sirens, find out how they are used and if you can hear them.

Remember, even if a siren is nearby, they are intended as an outdoor warning system. You may not be able to hear it inside your house. When you hear sirens, do not call 911 to ask what is happening; instead, listen to NOAA Weather Radio or local radio or TV for the warning information.

Most local radio and television stations broadcast storm warnings. Cable television systems will also have warning information, sometimes on a designated channel. However, satellite television stations do not provide local warnings unless you are watching a local station.

Many smartphone apps are available to provide warning notification. One particular service is the free Wireless Emergency Alerts provided through the Federal Emergency Management Agency. The warnings are broadcast from cell towers in the vicinity of the tornado and flash flood, so you will receive them if you are near the hazard. Coaches should check to ensure that the emergency weather alerts are activated on their cell phones.

What is Wet Bulb Globe Temperature?
The WetBulb Globe Temperature (WBGT) is a measure of the heat stress in direct sunlight, which takes into account: temperature, humidity, wind speed, sun angle and cloud cover (solar radiation). This differs from the heat index, which takes into consideration only temperature and humidity and is calculated for shady areas. Military agencies, OSHA and many nations use the WBGT as a guide to managing workload in direct sunlight. (National Weather Service Website)

	WBGT	Heat Index
Measured in the sun	X	
Measured in the shade		X
Uses temperature	X	X
Used relative humidity	X	X
Uses wind	X	
Uses cloud cover	X	
Uses sun angle	X	

Why the MSL change from the "heat index" to the "WBGT"?
The Illinois High School Association (IHSA), the governing body of high school athletics in Illinois, recently enacted a new heat guidelines that use the WGBT. In an effort to more closely align with the IHSA, the Mid Suburban League has adopted new heat guidelines. There are several advantages to using a WBGT. First, the WBGT can be taken at a specific location. Using heat index temperatures calculated from positions close to the school, but not at the school or on the actual playing surfaces, does not give as accurate a reading. Playing conditions can vary significantly depending upon the playing surface and its location. Second, the WBGT can be taken inside a venue to gather a heat action temperature reading. Currently we do not have a way to gather a heat index for an indoor location. Additionally, the WBGT uses other weather factors, such as wind and cloud cover, to calculate a more accurate "feels like" temperature. The WBGT is used by OSHA and the United States Military when determining temperature and determining if it is safe to work.

Why are the WBGT action temperatures lower than the heat index numbers?
Because WBGT will account for factors such as wind and cloud cover, the calculated action temperatures are actually lower than the previous heat index temperatures. Therefore, the corresponding action levels have been lowered to account for the change.

Why would a practice or contest be allowed to continue when a "heat index" indicates a potential danger?
Because the WBGT uses additional factors such as cloud cover, wind, and sun angle to calculate their reading, the OSHA has determined the WBGT is a more accurate representation of actual temperature and the effects on an individual. When using the WBGT, it is possible to continue an outdoor activity even when the "heat index" reading is elevated because wind speed and cloud cover will affect the WBGT reading but will have no effect on the "heat index".

What if a WBGT reading is not available?
District administration will determine an alternate way to obtain a WBGT reading when an athletic trainer is unavailable to determine a WBGT temperature

What if there is a conflict between WBGT and "heat index" readings? For example, the "heat index" says it is ok to play but the WBGT says practice should be canceled.
When a WBGT temperature is available, the decision to restrict or cancel practices and games will be based upon the WBGT readings and the restrictions table.

Is it possible to have thunder without lightning?
No, it is not possible to have thunder without lightning. Thunder is a direct result of lightning. However, it IS possible that you might see lightning and not hear the thunder because it was too far away. Sometimes this is called "heat lightning" because it occurs most often in the summer.

Is lightning always produced by a thunderstorm?
Thunderstorms always have lightning (thunder is caused by lightning, and you can't have a thunderstorm without thunder), but you can have lightning without a thunderstorm. Lightning can also be seen in volcanic eruptions, extremely intense forest fires, surface nuclear detonations, and in heavy snowstorms.

What causes thunder?
Thunder is caused by lightning. The bright light of the lightning flash caused by the return stroke mentioned above represents a great deal of energy. This energy heats the air in the channel to above 50,000 degrees F in only a few millionths of a second. The air that is now heated to such a high temperature had no time to expand, so it is now at a very high pressure. The high pressure air then expands outward into the surrounding air compressing it and causing a disturbance that propagates in all directions away from the stroke. The disturbance is a shock wave for the first 10 yards, after which it becomes an ordinary sound wave, or thunder. Thunder can seem like it goes on and on because each point along the channel produces a shock wave and sound wave.

What is Thor Guard?
Thor Guard is a lightening prediction system not a lightening detection system. Detection technology is based on electromagnetic (EMF) disruptions in our atmosphere, or what we would recognize as "static" on our AM radio dial. This technology can determine the distance between your location and the location of a lightning strike that has already occurred. Both Thor Guard and lightening detection systems can see lightning strikes in your region. In addition to detecting lightening strikes, Thor Guard constantly monitors the ongoing increases or decreases in intensity of the EMF to generate a prediction of lightning occurring in your immediate area (typically within a 2-2.5 mile radius). In short, Thor Guard will detect lightning strikes that have occurred and attempt to predict potential strikes in the future.

I was at a night game and could see lightning but we did not clear the field. Why?
At night, under certain atmospheric conditions, lightning flashes may be seen from distant storms. In these cases, it may be safe to continue an event. Each school in District 211 has a Thor Guard lightning prediction system and access to Weather Sentry weather monitoring systems. If no thunder can be heard and the flashes are low on the horizon, the storm may not pose a threat. Independently verified lightning detection information, Weather Sentry or Thor Guard, are consulted to further evaluate potential hazards from storms.

The Thor Guard went off but it was not raining and or lightning. Why did they clear the field?
Thor Guard contently measures the atmosphere to determine if atmospheric conditions would support a lightning strike. A "Bolt from the Blue" is a cloud-to-ground flash which typically comes out of the back side of the thunderstorm cloud, travels a relatively large distance in clear air away from the storm cloud, and then angles down and strikes the ground. These lightning flashes have been documented to travel more than 25 miles away from the thunderstorm cloud. They can be especially dangerous because they appear to come from clear blue sky. The Thor Guard system constantly monitors the local environment and focuses on predicting whether or not there is enough energy change to create a lightning strike. If the system determines the energy potential is there, it will alert and the fields will be cleared.

Once the field is cleared, when can play resume?
If the game was delayed because of seeing lightning or hearing thunder, play can resume 30 minutes after the last action that caused the suspension of play. If the game was delayed because of Thor Guard or lightning detection system, play will resume when the Thor Guard or lightning detection system gives the all clear signal, which could be as little as 10 minutes.