



NEPSAC SMAC Inclement Weather Guidelines 2023

I. Cold Weather Safety

Introduction and rationale:

Cold weather is a reality in New England, and in most cases can be safely enjoyed. There are, however, times when extremes in weather create hazardous conditions. Illnesses related to cold exposure include frostbite and hypothermia. There are many factors that play into cold related illness and it is important to remember illness associated with cold exposure especially hypothermia can occur during any season and in most climates¹. Extrinsic factors include ambient temperature, wind, precipitation, and humidity. Intrinsic factors include hydration, nutrition, fatigue, activity level, and insulation².

Many published guidelines for cold weather exercise are written for recreational athletes who are making self-decisions on whether or not to venture outside in cold conditions. Often these suggestions involve layering. For many competitive athletes, sport dictates attire and proper layering may not always be possible. The NCAA provides the following guidelines and suggestions regarding practice and competition sessions in cold weather:

Practice and Competition Sessions^{3,4}

The following guidelines, as outlined in the 2008 NATA position statement, can be used in planning activity depending on the wind chill temperature. Conditions should be constantly re-evaluated for change in risk, including the presence of precipitation.

Wind Chill Temperature (WCT) Range	Participation Guidelines
26-30 degrees Fahrenheit WCT	Monitor participants. Be aware of the potential for cold injury and notify appropriate personnel of the potential.
15-25 degrees Fahrenheit WCT	Encourage and provide additional protective clothing. Cover as much exposed skin as practical. Provide opportunities and facilities for re-warming

0-15 degrees Fahrenheit WCT	Consider modifying activity to limit exposure or to allow more frequent chances to re-warm.
Below 0 degrees Fahrenheit WCT	Consider terminating or rescheduling activity.

It is important to consider that the NCAA governs adult athletes and that NEPSAC's athlete population is composed of pediatrics and adolescents whose physiology (e.g., low body fat percentage) may predispose them to cold related illness . The following additional considerations were made in the formulation of the *NEPSAC Guidelines for Cold Weather Competition*:

- The safety of all parties that may be exposed to cold weather during competitive events: Fans, officials, and visiting athletes who may not be acclimatized to conditions, or may not be actively moving to generate warmth.
- The difference in activity level between practice and games, and between activities (e.g., sports) and positions. During games not all participants are able to move to generate warmth.
- The ability to layer, which could be limited by equipment. For example, it may be difficult to wear thick socks in tight fitting footwear, which could create increased risk of cold exposure. Other sports, such as Nordic skiing are more amenable to layering.

Please note that some sports and activities' governing bodies have their own set of policies dictating cold-exposure (e.g., Nordic Skiing). School representatives of those sports and activities should follow their governing body's recommendations regarding cold weather exposure, while also considering NEPSAC guidelines. School and/or event officials should reserve the right to cancel an event even if it is permissible under that sport's governing body's guidelines.

Cold Weather Competitions Guidelines:

Environmental conditions should be constantly monitored for change in risk, including precipitation and wind chill. Participants should be constantly monitored for change in status. Negative changes in either environment or participant health should be cause for alteration of plans, which may include event termination. It is important to note that competition officials and visiting teams share liability and should be included in the decision-making process. Hesitation by any party should be considered during the decision-making process. Keep in mind that layering systems for participants on the bench may be different than while playing, and may include changing into dry items.

Wind Chill Temperature Range	Participation Guidelines
21-30 degrees Fahrenheit WCT	Encourage proper layering while playing and while on bench. Consider changing into dry layers between halves or periods, extending warmups or accommodating indoor warm-ups, going inside between halves or periods.
15-20 degrees Fahrenheit WCT	Require proper layering while playing and while on bench. Consider changing into dry layers between halves or periods, extending warmups or accommodating indoor warm-ups, going inside between halves or periods, extending time indoors between halves or periods, doffing non-breathable equipment while indoors.
11-15 degrees Fahrenheit WCT	Require proper layering while playing and while on bench. Consider changing into dry layers between halves or periods, extending warmups or accommodating indoor warm-ups, going inside between halves or periods, extending time indoors between halves or periods, doffing non-breathable equipment while indoors.
Below 10 degrees Fahrenheit WCT	Terminate or reschedule activity.

Key Notes:

Considerations - Athletes actively competing and respective position demands, athletes not actively competing, game officials and other personnel, spectators, forecast and currently changing weather situations

Helpful Physical Resources - Warm building, busses/vehicles, temporary shelters (e.g., pop-up tents), blankets/sleeping bags, additional dry wicking clothing

Further Reading:

National Collegiate Athletics Association. *2014-2015 Sports Medicine Handbook*. "Guideline 2B: Cold stress and cold exposure." Revised 2009.

Cappaert, T., Stone, J., Castillani, J., Krause, B., Smith, D., Stephens, B. National Athletic Trainers' Position Statement: Environmental Cold Injuries. *Journal of Athletic Training*. 2008; 43 (6)

Dow, J, et al. Wilderness Medical Society Clinical Practice Guidelines for the Out-of-Hospital Evaluation and Treatment of Accidental Hypothermia: 2019 Update. *Wilderness Medical Society Clinical Practice Guidelines*. 2019.

US Department of Commerce, N. O. A. A. (2019, August 1). *Cold weather safety*. National Weather Service. Retrieved May 1, 2023, from <https://www.weather.gov/safety/cold>

II. Heat Safety

Introduction and rationale:

Activity in hot or humid environments can easily cause an exertional heat illness. Exertional heat illnesses can occur in anyone at any time. All signs and symptoms of an exertional heat illness should be treated as serious and help should be sought in a timely manner. The categories of exertional heat illness listed below usually do not occur in a stepwise manner and can change rapidly depending on the person, situation, and activity.

It is the position of the Sports Medicine Advisory Council (SMAC) of NEPSAC that all member schools establish exertional heat illness policies and emergency action plans which prevent, identify, and manage heat illness through procedures consistent with state recommendations. These policies and procedures and emergency action plans should be reviewed annually with appropriate site-specific staff for each institution.

Environmental Monitoring and Activity Modification/Cancellation:

Environmental monitoring should occur through use of a Wet-Bulb Globe Thermometer (WBGT) or comparable available temperature monitoring devices, and should occur any time the weather is warm and the forecasted wet bulb temperature could result in activity modifications. In the absence of a WBGT thermometer the relative humidity and temperature should be used to estimate WBGT temperature to make appropriate activity modifications.

Modifications based on weather conditions are fluid, and as the temperature, humidity, and other conditions change, practice and game modifications may need to be adjusted in response to improvement or decline of the local weather.

Heat Acclimatization

It is recommended that schools create and follow a heat acclimatization protocol, especially in equipment laden sports, to reduce the occurrence of exertional heat illness. Protocols which limit practice minutes and slowly introduce the amount of equipment being worn have helped to reduce exertional heat illnesses and injury among athletes. Resources from the Korey Stringer Institute do provide guidance for such protocols, which member schools may find useful in developing protocols specific to their own institution.

Monitoring and Treatment

Athletic personnel including the coaches, administrators, and athletic trainers should be educated on the signs and symptoms of exertional heat illnesses. Symptoms include (but are not limited to):

Core temperature of greater than 104 F at the time of incident	Rapid pulse, low blood pressure, quick breathing
Headache	Dehydration, dry mouth, thirst
Confusion or just look “out of it”	Decreasing performance or weakness
Disorientation or dizziness	Profuse sweating
Altered consciousness, coma	Collapse, staggering or sluggish feeling
Nausea or vomiting	Muscle cramps, loss of muscle function/balance, inability to walk
Diarrhea	Irrational behavior, irritability, emotional instability

Any athlete with signs of central nervous system dysfunction during exercise should be suspected to be suffering from exertional heat stroke until evaluated by a qualified healthcare professional. Current best practices for diagnosing exertional heat stroke is by gathering a core temperature reading. Athletic Trainers should follow their schools standing orders regarding rectal thermometry. If exertional heat stroke is suspected on-site, then cooling should begin immediately, and the schools EAP should be activated.

Cooling Protocol

The standard of care for an individual suffering from exertional heat stroke is cold water immersion until the core temperature reading reaches 102 degrees Fahrenheit. “Cool first, transport second” should be used.

While best practice for diagnosis of exertional heat stroke is through use of a rectal thermometer, this diagnostic technique may not be appropriate or possible for schools to use. NEPSAC SMAC recommends that schools discuss heat illness protocols with their medical director and refer to their standing orders and state practice acts to determine appropriate prevention, recognition, and treatment guidelines for heat illnesses.

Additional Resources:

Korey Stringer Institute, Exertional Heat Illness Policy Statement-

https://ksi.uconn.edu/prevention/sports-medicine-policies-procedures/exertional-heat-illness-policy-procedure_revised-2021-clean/

Korey Stringer Institute, Wet Bulb Globe Temperature Monitoring

<https://ksi.uconn.edu/prevention/wet-bulb-globe-temperature-monitoring/>

NATA Position Statement: Exertional Heat Illnesses (2015)

https://www.nata.org/sites/default/files/exertional_heat_illnesses.pdf

NATA Position Statement: Fluid Replacement for the Physically Active

https://www.nata.org/sites/default/files/fluid_replacement_for_the_physically_active.pdf

III. Lightning

Introduction and rationale:

The National Oceanic and Atmospheric Administration lists lightning as one of the most underrated weather hazards as people do not tend to realize the significant threat it can pose until it is too late. The Korey Stringer Institute reports that aside from flooding, lightning is the next highest storm threat for injury or death. The CDC reports from 2006 through 2021 that on average 28 people a year have died as a result of lightning strikes, many of which took place during recreational sports. Fortunately, the annual averages have been trending down due in large part to the implementation of successful policies for hazardous weather emergencies. It is important to take the appropriate steps to reduce the risk of injury and have a well thought out lightning plan in place.

Environmental Monitoring and Activity Modification/Cancellation:

A successful plan begins with adequate preparation including monitoring weather forecasts. Various weather tracking apps and software can aid individuals in forecasting and early decision-making for safer participation in sports. In the event that lightning tracking software cannot be used, expressions like “when thunder roars, go indoors”, “if you see it, flee it” and “if you can hear it, clear it” can also be used as guides. Utilizing a medical time out prior to any athletic event when hazardous weather is predicted is paramount to a smooth evacuation.

Practices and competitions should be suspended at the first sign of a lightning threat. The “all clear” can be given when no lightning has been detected within fifteen miles for at least thirty minutes. The National Athletic Trainers’ Association recommends the following distances for communication around field evacuation:

Table 4. Common Alerts for Real-Time Notification of Lightning

Alert	Meaning
"Heads up"	Lightning within 15 mi (13 nmi)
"Begin safety procedures"	Lightning within 10 mi (8.68 nmi)
"You are now in danger; safety procedures should be complete"	Lightning within 6 mi (5.2 nmi)
"All clear"	Lightning has not been detected at 15 mi (13 nmi) for 30 min

Abbreviation: nmi, nautical mile.

Effective lightning safety planning also incorporates knowing the location and proximity to the safest lightning shelter and how long it takes to get to the shelter as well as having a pre-established chain of command and a plan for disseminating field clearance information. Consider using venues, trails, etc. with quick access to substantial structures on days when hazardous weather is forecasted. It is important to review these plans regularly with all predetermined members of the lightning response team (e.g., athletic trainers, athletic directors, officials, coaches).

For additional lightning safety do's and don'ts, check out this quick reference from the NATA:
https://www.nata.org/sites/default/files/lightning_safety_handout.pdf

Resources:

https://www.nata.org/sites/default/files/2013_lightning-position-statement.pdf
<https://www.noaa.gov/jetstream/lightning/lightning-safety>
<https://www.cdc.gov/disasters/lightning/safetytips.html>
<https://ksi.uconn.edu/emergency-conditions/lightning/>