



# MCPRA COLD WEATHER Recommendations/Guidelines

(2021)

Cold injuries are a common result of exposure to cold environments during physical activity. The occurrence of these injuries are dependent on two factors: low air or water temperature, or both, and the influence of the wind on the body's ability to maintain a nonthermic core temperature due to

localized exposure of the extremities to cold air or surfaces. Cold injuries and illnesses can manifest in a wide range of physically active individuals. A safety threat exists when the physically active cannot maintain heat. Cold exposure can be uncomfortable, impair performance, increase injury risk and may be life threatening. Cold weather is defined as any temperature that can negatively affect the body's regulatory system. These do not have to be freezing temperatures.

Early recognition of cold stress is important. Shivering is a means for the body to generate heat and serves as an early warning sign. Excessive shivering contributes to fatigue and makes performance of fine motor skills more difficult. Other signs may include numbness, pain, swelling and redness in fingers and toes or a burning sensation of the ears, nose or any exposed flesh. Eyes may be red and watery, and athlete may complain of headache or dizziness.

As cold exposure continues, the body core temperature drops. When the cold reaches the brain, a victim may exhibit sluggishness, poor judgement and may appear disoriented. Speech will slowed down and slurred and movements will appear clumsy. If the participant wants to lie down and rest, the situation has become a medical emergency and the emergency action plan should be activated.

Cold injuries can be classified into three categories: freezing of extremities, nonfreezing of the extremities and hypothermia.

## Common Cold Injuries

**Frostnip:** a nonfreezing injury of the skin, usually of the fingers, toes, ears, cheeks and chin. Redness, numbness and tingling are present, but no tissue freezing occurs. Symptoms develop when blood vessels supplying the affected tissues narrow because of the cold temperatures. Frost nip occurs at temperatures of 59°F and below.

Do not rub the affected area, but gently rewarm the skin with clothing or skin contact.

**Chillblain:** A more significant nonfreezing injury of the skin, which can occur at temperatures at or below 59°F. Swelling of the exposed area is noted due to the rupturing of blood vessels walls in addition to the redness, numbness and tingling of frost nip.

Do not rub affected area, but gently rewarm the skin with clothing or skin contact.

**Frostbite:** Frostbite is the destruction of body tissues due to freezing which occurs at temperatures of 32°F and below. Ice crystal formation in the tissue breaks apart cells, therefore destroying the tissues.

Do not rub. Immerse the affected area in a warm, not hot, bath to reheat quickly.

**Hypothermia.** Abnormally low core body temperature. Because this happens gradually and affects thinking, an athlete may not realize they need help. A body temperature of 95°F or below is a medical emergency and can lead to death if not treated promptly.

Symptoms include pale, bluish skin, mental and motor impairment, slurred speech, fatigue, decreased or abnormal heart rate and pulse, slow and shallow breathing.

Warm the body as best as possible and activate EMS.

## Prevention of Cold Exposure Injury

In cold weather temperatures proper layered clothing should be worn and encouraged. These include:

- Several layers around the core of the body to insulate, especially those individuals who are least active.
- Long pants designed to insulate. A nylon shell or wind pant on top serves well as a wind break.
- Long sleeved shirt/sweatshirt/coat designed to block wind and insulate. These may be layered.
- Gloves
- Ear Protection/Hat
- Wicking socks that do not hold moisture inside. Cotton holds and absorbs moisture; wool is a better alternative.
- Athletes who are not dressed adequately for the weather should not be allowed to participate for his or her safety.

## Wind Chill Temperature

The wind chill temperature is how cold people and animals feel when they're outside. Wind chill is based on the rate of heat loss from exposed skin caused by wind and cold. As the wind increases, it draws heat from the body, driving down the skin temperature

and eventually the internal body temperature. Therefore, the wind makes it feel much colder and poses a more severe threat to our bodies.

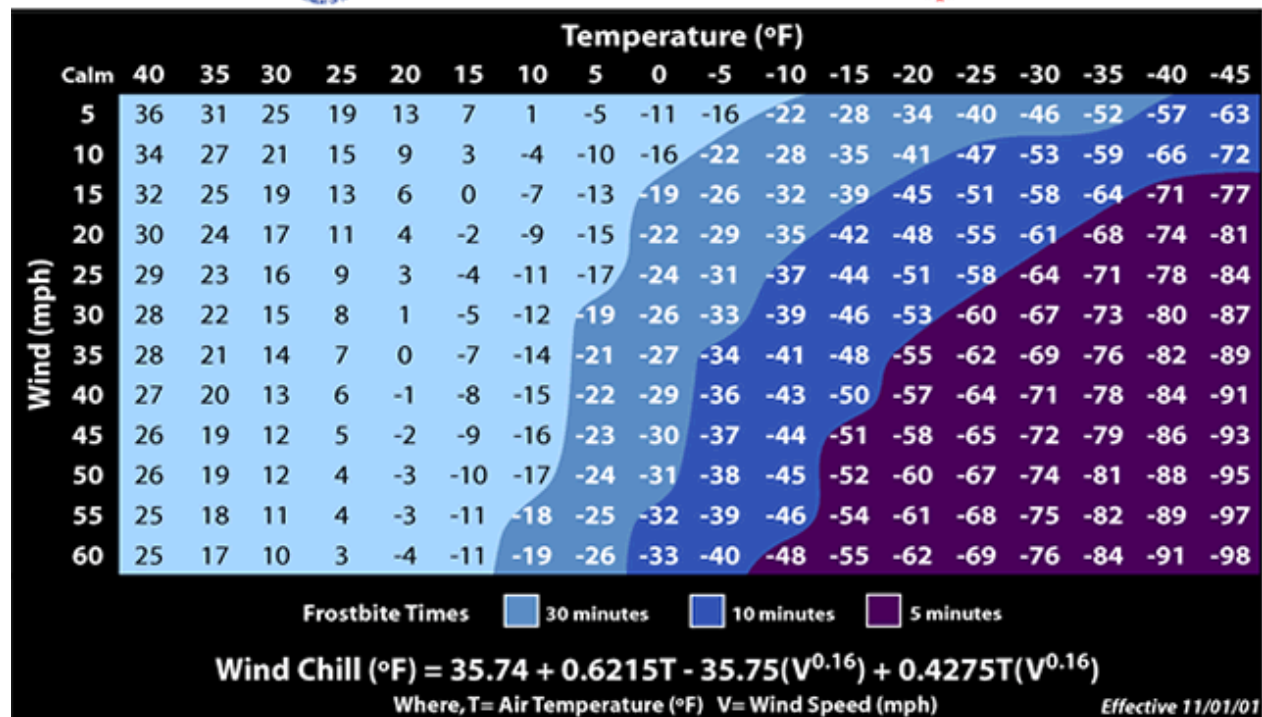
**Wind Chill Advisory:** The National Weather Service issues this product when the wind chill could be life threatening if action is not taken. The criteria for this warning vary from state to state. In Virginia a Wind Chill Advisory is issued when wind chills of -5°F to -19°F are expected east of the Blue Ridge Mountains, and when wind chills of -10°F to -24°F are expected along and west of the Blue Ridge Mountains.

**Wind Chill Warning:** The National Weather Service issues this product when the wind chill is life threatening. The criteria for this warning vary from state to state. In Virginia a Wind Chill Warning is issued when wind chills of -20°F or lower are expected east of the Blue Ridge Mountains, and when wind chills of -25°F or lower are expected along and west of the Blue Ridge Mountains.

**Deriving Wind Chill:** Wind chill is a combination of temperature (°F) and wind speed (MPH) and can be derived using the chart below.



## Wind Chill Chart



## Guidelines for Practice and Competition

The following guidelines can be used in making practice and competition decision.

Wind Chill Temperature	Recommendations
31°F and above	Normal Practice
30°F and below	Be aware of potential for cold injury and notify appropriate personnel of the potential.
25°F and below	Provide additional protective clothing, cover as much exposed skin as practice and provide opportunities and facilities for rewarming.
15°F and below	Consider modifying activity to limit exposure or to allow more frequent chances to rewarm
0°F and below	Consider terminating or rescheduling activity.

When wind chill temperature is at 30°F or below rules/regulations regarding undergarments should be waived.

## References

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3. Funkhouser BA, Bussey B. Sports Safety Guidelines: Cold Weather. Washington County Public Schools Athletic Training. <https://www.quia.com/files/quia/users/funkhoba/Sports-Safety-Guidelines-Cold-Weather.pdf>. Accessed November 28, 2018.
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