

NGFA Safety Tips: Heat- and Cold-Related Injuries

...Committed to promoting safety and health in the workplace...

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Heat- and Cold-Related Injuries: Symptoms and First Aid

Workers in the grain, feed and processing industries may face extreme heat and cold conditions at their worksites. Being able to identify the signs and symptoms of heat- and cold-related injuries, as well as identify clothing or PPE items that will aid in mitigating certain weather-related risks, will aid your company in being able to provide the necessary first aid prior to medical treatment. This fact sheet summarizes information for employers regarding measures they should consider to prevent worker illnesses caused by extreme heat or cold conditions.

Heat Injuries: Symptoms and First Aid Recommendations

Heat Stroke

Symptoms:

- Confusion
- Fainting
- Seizures
- Excessive sweating, or red, hot dry skin
- Very high body temperature

First Aid:

- Call 911; while waiting for help
- Move to shady, cool area
- Loosen clothing; remove outer layer
- Fan air on worker; insert cold packs under arm pits
- Cool and wet worker with ice, water or cold compresses
- Stay with worker until help arrives

Heat Exhaustion

Symptoms:

- Cool moist skin
- Heavy sweating
- Headache
- Nausea or vomiting
- Dizziness, light headedness
- Weakness
- Thirst
- Irritability
- Fast hear beat

First Aid:

- Have worker sit or lie down in cool, shady area
- Provide plenty of water or other cool beverages to drink
- Cool worker with cold compresses/ ice packs
- If signs or symptoms worsen or do not improve within 60 minutes, seek medical aid

NGFA Safety & Health Program

- The NGFA is committed to promoting safety and health in the workplace, and shares the Occupational Safety and Health Administration's (OSHA's) commitment to protecting employees.
- The NGFA's extensive efforts to enhance safety include unprecedented research and education efforts launched in the early 1980s that helped lead to a dramatic reduction in the number of fire and explosion incidents in commercial grain-handling facilities.
- Each year, NGFA jointly sponsors regional safety seminars with affiliated state and regional grain and feed associations. The one-day conferences focus on keeping grain handling employees physically safe.

NGFA Reference Corner

OSHA Fact Sheet

[CLICK HERE](#)

Medicine Net Cold Injuries

[CLICK HERE](#)

More safety information at www.ngfa.org

Contact VP Safety and Regulatory Affairs Jess McCluer or Manager of Training, Education and Regulatory Affairs Jim Seibert at 202-289-0873

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Heat Cramps

Symptoms:

- Muscle spasms
- Pain in abdomen, arms or legs

First Aid:

- Rest in shady, cool area
- Drink water or other cool beverages
- Wait a few hours before allowing to work
- Seek medical aid if cramps persist

Heat Rash

Symptoms

- Clusters of red bump on skin
- Often appears on neck, upper chest, folds of skin

First Aid:

- Try to work in cooler less humid area when possible
- Keep the affected area dry

Preventing Heat-Related Injuries or Illnesses:

- Engineered controls (e.g., air conditioning, cooling fans, general ventilation)
- Acclimatization
- Adequate amounts of potable water close to work areas
- Appropriate work/rest cycles
- Strenuous work scheduled to avoid the peak heat of the day, whenever possible
- Rotate job functions among workers
- Work in buddy teams to watch out for each other

Cold Injuries: Symptoms and First Aid Recommendations

Hypothermia

Symptoms:

- Shivering

First Aid:

- Move person to warm, dry shelter

Frostbite

Symptoms:

- Redness in light skin, grayish in dark skin
- Burning, tingling, itching or cold sensation followed by numbness
- Skin turns white, waxy to the touch
- May have blistering

First Aid:

- Move person to warm, dry area
- Remove any wet or tight clothing
- Do not rub infected area
- Place affected area in warm water bath (105 degrees) and monitor temperature
- Seek medical attention

Frostnip

Symptoms:

- Skin turns white
- Top layer of skin feels hard, but deeper layer feels normal
- May feel tingling or numbness

First Aid:

- Gently rewarm area by blowing warm air or by placing against a warm body part
- Do not use very hot objects or rubbing

Chilblains (*painful, itching swelling on the skin, typically on a hand or foot, caused by poor circulation in the skin when exposed to cold*)

Symptoms:

- Red, swollen skin which is tender, hot to the touch, and may itch
- Can worsen to aching, prickly sensations, then numbness
- Open sores or lesions from continued exposure

First Aid:

- Warm affected areas gently with direct body heat
- Do not rub or wet the affected area
- Seek medical attention

Immersion (Trench Foot)

Symptoms:

- Reddened skin, then turns pale and mottled, to purple, gray and blue
- Tingling pain, itching, burning or numbness may occur, followed by leg cramps or swelling
- May develop blisters, ulcers or gangrene

First Aid:

- Remove wet clothing and replace with dry garments
- Elevate feet to reduce swelling
- Do not walk on injured feet
- Warm affected area slowly at room temperature. Carefully clean, dry and wrap with loose sterile dressing
- Seek prompt medical attention

Preventing Cold-Related Injuries or Illnesses:

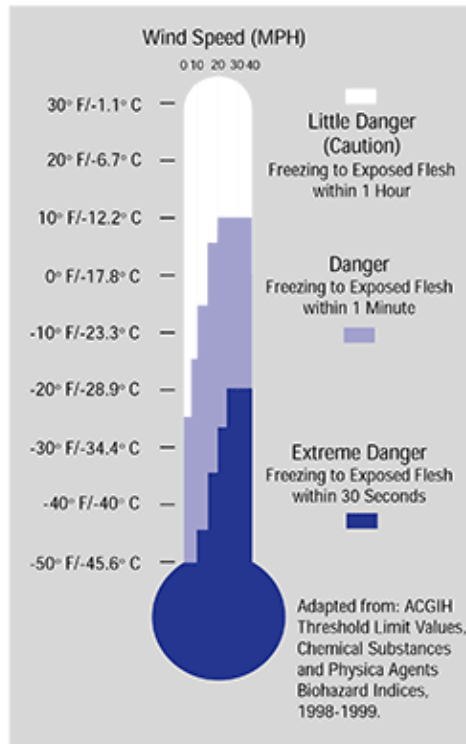
- Wear appropriate clothing
- Avoid wetness or excessive sweating; stay dry
- Keep active, avoid sitting or standing still
- Take breaks in warming areas
- Work in buddy teams to watch out for each other
- Don't smoke
- Drink plenty of warm non-caffeinated or non-alcoholic beverages
- Consume warm, high-caloric food often

THE COLD STRESS EQUATION

**LOW TEMPERATURE + WIND SPEED + WETNESS
= INJURIES & ILLNESS**

When the body is unable to warm itself, serious cold-related illnesses and injuries may occur, and permanent tissue damage and death may result.

Hypothermia can occur when *land temperatures* are **above** freezing or *water temperatures* are below 98.6°F/37°C. Cold-related illnesses can slowly overcome a person who has been chilled by low temperatures, brisk winds, or wet clothing.



THE SYMPTOMS OF HEAT-RELATED ILLNESS

Muscle cramping is often the first sign of heat-related illness and could lead to more severe conditions like heat exhaustion and heat stroke. The symptoms for each are listed below.

HEAT EXHAUSTION

- Heavy sweating
- Weakness
- Cool, pale, and clammy skin
- Fast, weak pulse
- Nausea/vomiting
- Fainting
- Muscle cramps
- Low blood pressure as vessels dilate



HEAT STROKE

- Body temperature (above 103°F)
- Hot, red, dry or moist skin
- Rapid, strong pulse
- Possible unconsciousness
- Disorientation
- Loss of the ability to sweat
- Heart/kidney failure in extreme cases