



#### Authors

John Shutske, University of Minnesota  
Michele Schermann, University of Minnesota

## Extreme Temperatures

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#### Reviewers

Liz Wagstrom, National Pork Board  
Kerry Leedom-Larson, National Pork Board

### Introduction

Employees in pork production facilities are often required to leave controlled-temperature environments in order to perform their work duties. This makes them vulnerable to stress and illness related to extreme temperatures. Prolonged exposure to extreme temperatures, both heat and cold, can lead to serious health conditions and can even be fatal.

Most environments in a hog facility are climate controlled and people can become susceptible to stress and illness moving between buildings in extreme temperatures. Both employers and employees should learn to recognize and prevent the harmful effects of extreme hot and cold weather conditions.

### OSHA Rule(s)

The Occupational Safety and Health Act (OSH Act) requires employers to comply with hazard-specific safety and health standards. In addition, pursuant to Section 5(a)(1) of the OSH Act, often referred to as the General Duty Clause, employers must provide their employees with a workplace free from recognized hazards likely to cause death or serious physical harm. OSHA has previously used the General Duty Clause to cite employers that have allowed employees to be exposed to potential serious physical harm from excessively hot work environments.

### Hazard

**Extreme heat.** Operations involving high air temperatures, radiant heat sources, high humidity, direct physical contact with hot objects, or strenuous physical activities have a high potential for inducing heat stress in employees.

Outdoor operations conducted in hot weather, especially those that require workers to wear semi-permeable or impermeable protective clothing, are also likely to cause heat stress among exposed workers. There are three illnesses of increasing severity caused by working in extreme heat: heat cramps, heat exhaustion, and heat stroke .

- *Heat cramps* - the mildest form of heat related illness, are painful cramps in the arms, legs, or abdomen.
- *Heat exhaustion* - a moderate form of heat related illness, is caused by failure of the body's cooling system. Symptoms include: rapid pulse, increased respiration, clammy skin, heavy sweating, and total body weakness/exhaustion. Heat exhaustion can lead to heat stroke if ignored.
- *Heat stroke* - is a very serious heat related illness that occurs when the body has used up all its water and salt. Symptoms include: dry hot skin (sometimes red in color), decreased or absent sweating, irrational behavior, loss of consciousness, and sometimes convulsions.

**Extreme cold.** Cold related-injuries can result from working in cold environments such as outdoors in the winter. Examples of cold-related injuries are frostbite and hypothermia . Very cold conditions can also aggravate pre-existing health problems, such as Raynaud's disease, asthma, and diabetes. Snow and ice on walkways also increase the risk of falls .

- *Frostbite* - is damage to the body caused by extreme cold. Symptoms include: numbness in the affected areas, waxy appearance to the skin, affected skin is cold to the touch, and skin becomes flushed/red, white, yellow, or blue.
- *Hypothermia* - is caused when the body temperature drops below 95 degrees Fahrenheit. Hypothermia can cause permanent kidney, liver, and pancreas damage, and can even result in death. Symptoms include: numbness in the arms and legs, muscle tension, feeling cold and fatigued, and uncontrollable shivering. Medical attention should be sought immediately if hypothermia is suspected.

## Prevention and Control

Checklist for Employers – Keeping Employees Safe in Extreme Cold

- Encourage employees to dress in layers, and wear waterproof, insulated boots.
- Plan for sufficient employee breaks in a warm location.
- Train your employees on the symptoms and treatments of cold-related illnesses

Checklist for Employers – Keeping Employees Safe in Extreme Heat

- Provide fresh drinking water at all times to prevent dehydration. Permit workers to drink at liberty.
- Allow a slower work pace; overexertion can challenge the body's cooling system.
- Do not allow employees to wear shorts on the job.
- Plan for sufficient employee breaks in a cool, shady location.
- Train your employees on the symptoms and treatments of heat-related illnesses.

Consider a heat stress program which may incorporate the following:

- A training program informing employees about the effects of heat stress, and how to recognize heat-related illness symptoms and prevent heat-induced illnesses;
- A screening program to identify health conditions aggravated by elevated environmental temperatures;
- An acclimation program for new employees or employees returning to work from absences of three or more days;
- Specific procedures to be followed for heat-related emergency situations;
- Provisions that first aid be administered immediately to employees displaying symptoms of heat-related illness.

## Additional Resources

OSHA Technical Manual, Chapter 4 Heat Stress. In-depth information on heat disorders and health effects, investigation guidelines, sampling methods, control, and PPE. ([http://www.osha.gov/dts/osta/otm/otm\\_iii/otm\\_iii\\_4.html#3](http://www.osha.gov/dts/osta/otm/otm_iii/otm_iii_4.html#3))

OSHA Quick Card on Heat Stress. Post in employee areas (English), or in Spanish.

Working in Hot Environments (NIOSH). In Spanish and English. (<http://www.cdc.gov/niosh/hotenvt.html>)

Cold Checklist ([www.cdc.gov/eLCOSH/docs/d0200/d000227/d000227.html](http://www.cdc.gov/eLCOSH/docs/d0200/d000227/d000227.html)) and Heat Checklist ([www.cdc.gov/elcosh/docs/d0200/d000232/d000232.html](http://www.cdc.gov/elcosh/docs/d0200/d000232/d000232.html)) (Taken from the “Tailgate Meetings that Work: A Guide to Effective Construction Safety Training” series).

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