

## Heat-related Illness: Response and Prevention

In hot and humid environments, workers must take precautions to protect themselves from heat-related illnesses.

### Exposure Risk

Anyone can experience a heat-related illness, regardless of their age or fitness level.

Examples of at-risk occupations include firefighting, mining, environmental hazard abatement and manufacturing with heat-generated processes. During summer months, outdoor workers in occupations such as construction, recreation and food services, utilities, agriculture, grounds maintenance, and oil and gas production are particularly vulnerable.

Workers may be more susceptible to heat-related illnesses if they are:

- Not adapted to working in hot and humid conditions
- Performing strenuous work
- Wearing heavy protective clothing and equipment
- Suffering from a medical condition such as hypertension or heart disease
- Overweight or obese
- Taking certain medications (ask your physician)

The occurrence of heat illness is often related to the heat index, a combination of relative humidity and air temperature. A relative humidity of at least 60 percent hampers sweat evaporation, which diminishes the body's ability to cool itself. Meanwhile, risk significantly increases when the heat index climbs above 90 degrees. In addition, full sun exposure can increase the reported heat index by up to 15 degrees.

### Recognizing Heat-related Illness

Heat-related illnesses range in severity from potentially fatal heat stroke to skin irritation. Heat stroke is a medical emergency that requires an immediate response. Refer to Table 1 for symptoms and measures to take if a worker shows signs of a heat-related illness.



**Table 1:** Recognizing and responding to heat-related illness

Illness	Symptoms	Response
Heat Stroke	<ul style="list-style-type: none"> <li>Confusion</li> <li>Fainting</li> <li>Seizures</li> <li>Excessive sweating or red, hot, dry skin</li> <li>Very high body temperature</li> </ul>	<ul style="list-style-type: none"> <li>Call 911</li> </ul> <p>While waiting for help:</p> <ul style="list-style-type: none"> <li>Place worker in shady, cool area</li> <li>Loosen clothing, remove outer clothing</li> <li>Fan air on worker</li> <li>Wet worker with cool water; apply ice packs, cool compresses or ice, if available</li> <li>Stay with worker until help arrives</li> </ul>
Heat exhaustion	<ul style="list-style-type: none"> <li>Cool, moist skin</li> <li>Heavy sweating</li> <li>Headache</li> <li>Nausea or vomiting</li> <li>Feeling dizzy or light-headed</li> <li>Weakness</li> <li>Thirst</li> <li>Irritability</li> <li>Fast heart beat</li> </ul>	<ul style="list-style-type: none"> <li>Have worker sit or lie down in a cool, shady area</li> <li>Give worker plenty of water or other cool, hydrating beverages to drink</li> <li>Cool worker with cold compresses/ice packs</li> <li>Seek a medical evaluation if signs or symptoms worsen or do not improve within 60 minutes</li> </ul>
Heat cramps	<ul style="list-style-type: none"> <li>Muscle spasms</li> <li>Pain</li> <li>Usually in abdomen, arms, or legs</li> </ul>	<ul style="list-style-type: none"> <li>Have worker rest in shady, cool area</li> <li>Worker should drink water or other cool beverages</li> <li>Have worker seek medical attention if cramps don't go away</li> </ul>
Heat rash	<ul style="list-style-type: none"> <li>Clusters of red or purple pimples or small blisters</li> <li>Often appears on neck, upper chest, under folds of skin</li> </ul>	<ul style="list-style-type: none"> <li>Try to find work in a cooler, less humid environment</li> <li>Keep the affected area dry (dusting powder may be helpful)</li> </ul>

**Source:** Occupational Safety and Health Administration (OSHA)

## Prevention

To help prevent heat-related illness and fatalities, workers should:

- Drink water every 15 minutes
- Take frequent rest breaks in a shady place or cool indoor area
- Use spray or water mist as a cooling device Apply ice and wet cloths to skin
- When outside, wear a broad-brimmed hat, light-colored loose clothing, neck covering and sun screen

OSHA advises employers to have an emergency plan in place that specifies what to do if a worker has signs of heat-related illness and ensure medical services are readily available. Additional recommendations include:

1. Help workers become acclimatized and gradually increase their workload
2. Have fresh drinking water readily available.
3. Incorporate work/rest cycles and job rotation to reduce heat exposure.
4. Schedule the most physically demanding work during cooler times of the day.

For indoor workers, engineering controls also may be used to help reduce heat exposure. Examples include:

- Air conditioning, cooling fans and ventilation systems
- Reflective shields to redirect radiant heat
- Insulation of hot surfaces such as furnace walls
- Elimination of steam leaks

In some situations, employers may be required to conduct physiological monitoring of workers at risk of heat-related illness. Protective gear may include insulated or reflective clothing and suits equipped with a self-contained air conditioner or compressed air source.

## Training is Essential

Peter P. Greaney, M.D., president, CEO and medical director of Workcare and a consulting Costco physician, said taking the time to properly train managers, supervisors and employees is essential.

"Many workers do not have the luxury of working in an air-conditioned environment," he said. "Employers need to train and retrain employees. It is important to have instructional materials onsite so employees can follow them in an emergency situation, when it can be difficult to remember proper treatment steps."

***"However, it is safer, and easier, to avoid heat-related illnesses than it is to treat them. Heat illness can be prevented; any death due to heat illness is a tragedy."***

## Resources

[National Weather Service alerts](#): excessive heat warnings

[OSHA: occupational heat exposure](#)

## Heat Safety Tool Smartphone App

The OSHA-NIOSH Heat Safety Tool is a useful resource for planning outdoor work activities based on how hot it feels throughout the day.