

Heat-related Illnesses and First Aid



Heat stroke, the most serious form of heat-related illness, happens when the body becomes unable to regulate its core temperature. Sweating stops and the body can no longer rid itself of excess heat. Signs include confusion, loss of consciousness, and seizures. **"Heat stroke is a medical emergency that may result in death! Call 911 immediately"**



Heat exhaustion is the body's response to loss of water and salt from heavy sweating. Signs include headache, nausea, dizziness, weakness, irritability, thirst, and heavy sweating.



Heat cramps are caused by the loss of body salts and fluid during sweating. Low salt levels in muscles cause painful cramps. Tired muscles—those used for performing the work—are usually the ones most affected by cramps. Cramps may occur during or after working hours.

Heat rash, also known as prickly heat, is skin irritation caused by sweat that does not evaporate from the skin. Heat rash is the most common problem in hot work environments.

The chart below shows **symptoms** and **first aid measures** to take if a worker shows signs of a heat-related illness.

Illness	Symptoms	First Aid*
Heat stroke	<ul style="list-style-type: none"> ▪ Confusion ▪ Fainting ▪ Seizures ▪ Excessive sweating or red, hot, dry skin ▪ Very high body temperature 	<ul style="list-style-type: none"> ▪ Call 911 <p>While waiting for help:</p> <ul style="list-style-type: none"> ▪ Place worker in shady, cool area ▪ Loosen clothing, remove outer clothing ▪ Fan air on worker; cold packs in armpits ▪ Wet worker with cool water; apply ice packs, cool compresses, or ice if available ▪ Provide fluids (preferably water) as soon as possible ▪ Stay with worker until help arrives
Heat exhaustion	<ul style="list-style-type: none"> ▪ Cool, moist skin ▪ Heavy sweating ▪ Headache ▪ Nausea or vomiting ▪ Dizziness ▪ Light headedness ▪ Weakness ▪ Thirst ▪ Irritability ▪ Fast heart beat 	<ul style="list-style-type: none"> ▪ Have worker sit or lie down in a cool, shady area ▪ Give worker plenty of water or other cool beverages to drink ▪ Cool worker with cold compresses/ice packs ▪ Take to clinic or emergency room for medical evaluation or treatment if signs or symptoms worsen or do not improve within 60 minutes. ▪ Do not return to work that day
Heat cramps	<ul style="list-style-type: none"> ▪ Muscle spasms ▪ Pain ▪ Usually in abdomen, arms, or legs 	<ul style="list-style-type: none"> ▪ Have worker rest in shady, cool area ▪ Worker should drink water or other cool beverages ▪ Wait a few hours before allowing worker to return to strenuous work ▪ Have worker seek medical attention if cramps don't go away
Heat rash	<ul style="list-style-type: none"> ▪ Clusters of red bumps on skin ▪ Often appears on neck, upper chest, folds of skin 	<ul style="list-style-type: none"> ▪ Try to work in a cooler, less humid environment when possible ▪ Keep the affected area dry

* Remember, if you are not a medical professional, use this information as a guide only to help workers in need.

For more information about heat-related illnesses:

- **[OSHA Campaign to Prevent Heat Illness in Outdoor Workers materials](#):**
 - [Illustrated, low-literacy fact sheets for workers](#) (PDF*). OSHA, (2011). A [Spanish version](#) (PDF*) is also available.**
 - [Worksites poster for employers that illustrate heat illness](#) (PDF*). OSHA, (2011). A [Spanish version](#) (PDF*) is also available.**
 - [Community posters that list heat prevention tips and provide OSHA contact information](#) (PDF*). A [Spanish version](#) (PDF*) is also available.**
 - [OSHA Heat Illness Prevention Training Guide](#) (PDF*). OSHA, (2011). A [Spanish version](#) (PDF*) is also available.
 - [Use OSHA's Heat Smartphone App](#). Check the heat index for your worksite and see reminders about the protective measures for the specified risk level.
- [OSHA Technical Manual \(OTM\)](#). OSHA Directive TED 01-00-015 [TED 1-0.15A], (1999, January 20). Includes a chapter on [Heat Stress](#) with useful sections on the signs and symptoms of heat stress, sampling methods, control suggestions, and guidelines for investigating heat stress in the workplace.
- [Protecting Workers from the Effects of Heat](#) (PDF*). OSHA Fact Sheet, (2011, April).
- [Protecting Workers from Heat Stress](#) (PDF*). OSHA Quick Card, (2010).
- [Protecting Workers from Heat Illness](#) (PDF*). OSHA-NIOSH Info Sheet, (2011).
- [Working in Hot Environments](#). National Institute for Occupational Safety and Health (NIOSH) Publication No. 86-112, (1986, April). Overview of health hazards and preventive measures for working in hot environments.
- [Heat Stress](#). National Institute for Occupational Safety and Health (NIOSH) Workplace Safety and Health Topic Page.
- [Frequently Asked Questions \(FAQ\) about Extreme Heat](#). Centers for Disease Control and Prevention (CDC).
- [Heat Illness](#). National Institutes of Health, Medline Plus. Includes information in multiple languages.
- [Heat: A Major Killer](#). National Oceanic and Atmospheric Administration (NOAA), National Weather Service. Links to landing page with NWS's heat index description and chart.
- *Heat Stress and Strain: TLV® Physical Agents 7th Edition Documentation*. Summarizes the scientific data used by the American Conference of Government Industrial Hygienists (ACGIH) used to derive its threshold limit value (TLV) for heat exposure.
- Cal/OSHA Webpage: [California Campaign to Protect Outdoor Workers From Heat Illness](#)**
- Cal/OSHA [Heat Illness Prevention eTool and Action Kit](#)***
- Washington State Department of Labor and Industries Webpage: [Outdoor Heat Exposure \(OHE, Heat Stress\)](#)***

**These resources were adapted from: [California OSHA's heat campaign materials](#).

***California and Washington state have their own heat illness prevention standards; these materials reflect the requirements in those standards.