

# Overview

## Things you need to know:

- Heat exposure can cause a range of effects on your body, from irritating rashes to heat stroke, which is often fatal.
- Heat exposure can cause confusion and poor judgment—use the buddy system to monitor coworkers for heat illness.
- Drinking enough water is critical to preventing heat illness. Stay hydrated.
- Cooling is the treatment for all heat illness.

Understanding heat stress can help you to stay safe while working in hot environments.

## Factors that Increase Heat Illness Risk

- High humidity
- Lack of wind or breeze to cool the body<sup>1</sup>
- Dehydration
- Lack of acclimatization
- Age over 60 years
- Protective gear, including non-breathable or minimally breathable clothing, respirators, and chemical-resistant apparel
- History of heat illness
- History of recent illness unrelated to heat (especially involving vomiting or diarrhea)
- Certain health conditions<sup>2</sup>
- Certain medications<sup>2</sup>
- Physically demanding work
- Recent alcohol use (within previous 24 hours)

<sup>1</sup>When ambient conditions are higher than body temperature, warm airflow can actually increase heat gain.

<sup>2</sup>Refer to the Heat Stress: Risk Factors fact sheet [(DHHS) NIOSH No. 2017-125] or consult a healthcare provider.

## Workers need to look out for each other! Use a buddy system!

Often it is a coworker who first notices signs of heat stress in another employee.



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## Types of Heat Illness

### Heat rash/"prickly heat"

- Red cluster of pimples or small blisters, usually on neck, upper chest, groin, under breasts, and in elbow creases

### Heat cramps

- Muscle cramps, pain, or spasms in the abdomen, arms, or legs

### Heat syncope (fainting)

- Fainting, dizziness, or light-headedness, after prolonged standing or suddenly rising from a sitting or lying position

### Heat exhaustion

- Headache
- Nausea
- Dizziness, weakness
- Irritability
- Thirst
- Heavy sweating
- Elevated body temperature, decreased urine output

### Heat stroke

- Confusion, altered mental status, slurred speech, loss of consciousness
- Hot, dry skin or profuse sweating
- Seizures
- Very high body temperature
- Fatal if treatment is delayed

Less Severe

Severe

OFTEN FATAL

## Points to Remember

### Hot environments can be hazardous!

- Heat exhaustion is treatable, but can turn into heat stroke quickly if not recognized and treated.
- Heat stress can affect alertness and judgment, which can lead to accidents and injuries.
- Heat illness does not always happen on the hottest days. It can happen in moderate conditions, or even in cool conditions when performing heavy physical work.
- Get emergency medical aid immediately if heat stroke is suspected. The risk of death is higher without rapid treatment.

### Acclimatization is critical, and may need to be repeated!

- Heat acclimatization is the improvement in heat tolerance that comes from gradually increasing the duration or intensity of work performed in a hot setting.
- Acclimatization is most effective if it takes place gradually over a period of 7 to 14 days.
- You begin to lose your acclimatization after about one week away from work in the heat.
- After 1 month away from work in the heat, most people will have lost nearly all heat acclimatization.

### Stay hydrated!

- Drinking enough fluids is one of the most important ways to avoid heat illness.
- Don't rely on thirst to tell you when you are dehydrated—thirst lags behind dehydration by several hours.
- Drink 1 cup (8 ounces) of water every 15–20 minutes while working in the heat.
- Electrolytes can be replaced by eating regular meals.
- Sports drinks can also replace electrolytes, but are not usually necessary unless heavy sweating continues for more than 2 hours and eating meals or snacks is not an option.

### Give your body time to cool off.

### Pay attention to work/rest schedules!

- You must take rest breaks periodically to allow your body to cool down.
- Work/rest schedules can increase productivity and reduce risk of heat illness by guiding workers on how often to take cooling breaks.
- Know your personal limits and options for cooling at your worksite. Let a buddy know if you need to take a break to cool down.

## Case Study: Heat Illness and Heavy Machinery\*

A 48-year-old employee was running a loader at an open pit mine in Arizona in mid-August when another employee noticed he was just sitting in the cab and not moving. A supervisor called the employee on the radio three times with no response. The supervisor went to the employee and discovered him to be confused and unresponsive.

### More than just a health issue!

What might have happened if the employee had been driving or operating the loader when he became unresponsive?

*\*MSHA Accident and Injury Report*



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