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

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.

Factors that Increase Heat Illness Risk
• High humidity
• Lack of wind or breeze to cool the body
• 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
• Certain medications
• Physically demanding work
• Recent alcohol use (within previous 24 hours)

• When ambient conditions are higher than body temperature, warm airflow can actually increase heat gain.

• Refer to the Heat Stress: Risk Factors fact sheet [DHHS NIOSH No. 2017-125] or consult a healthcare provider.

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

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.
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*