Heat Stress

Use this toolbox talk to educate your team on heat stress safety when working in construction.

Heat Stress & Working in Heat

Depending on the time of year and location of the jobsite, construction workers are commonly exposed to high temperatures when working outdoors. The combination of hot weather and intense labor puts many at risk for heat stress and heat-related illness (HRI).

Heat stress may be deadly, and even non-fatal HRI results in more trips to the ER than any other occupational injury each year. In this 5 minute safety talk on heat stress, we'll take a quick look at the different types of heat-related illnesses and teach you how to treat and prevent them.

What is heat stress?

Heat stress is a condition that occurs when the body cannot get rid of excess heat. Your body temperature rises, your heart rate increases, and you may experience a range of symptoms, from sweating (or lack of sweating) to dizziness and collapse.

Heat stress can result in a number of heat-related illnesses, including heat stroke, heat exhaustion, heat cramps, and heat rash.

What causes heat stress?

Workers at risk of heat stress typically include outdoor workers and workers in warm or hot environments. Construction workers are especially susceptible to heat stress as they perform hard labor outdoors in the summer months.

A shortlist of factors that contribute to heat stress include:

- High outdoor temperature
- Layers of clothing/PPE
- Dehydration
- Decreased urination
- High humidity

- Direct sunlight
- Intensity of work
- Non-A/C workspaces

Heat-related illness symptoms and causes

When left untreated, heat stress can lead to a variety of heat-related illnesses, which can progress rapidly. It's important to know the symptoms and causes of heat-related illnesses so you can be aware and help protect yourself and others.

Heat cramps

Heat cramps are debilitating painful muscle cramps that are caused by working in a hot environment. They may start while you are working or up to a couple of hours after you leave that environment.

The affected muscles are typically the ones being used the most, like calves, hamstrings, hands, or lower back.

Heat exhaustion

Heat exhaustion is the body's response to an excessive loss of water, salt, or both. Left untreated, heat exhaustion can lead to heat stroke.

Symptoms of water depletion (or dehydration) include:

- Excessive thirst
- Headache
- Weakness
- Loss of consciousness

Symptoms of salt depletion include:

- Nausea
- Vomiting
- Muscle Cramps
- Dizziness

Heat stroke

Heat stroke is the ultimate breakdown of the body’s temperature control system. It occurs when the body can no longer control its temperature,

resulting in a rapid rise in body temperature that can cause organ damage, brain damage, and even death.

Heat stroke is the most serious type of heat illness on the construction site because it is life-threatening. In non-lethal cases, heatstroke can still result in permanent disability, so it's imperative that those suffering heat stroke symptoms receive emergency treatment.

Symptoms of heat stroke include:

- Fainting
- High Body temp
- Powerful headache
- Lack of sweating
- Vomiting
- Confusion

Basic chemistry of heat-related illnesses

In our bodies, water follows salt. They always travel together in and out of your body. You never lose one without the other, and your sweat always contains a percentage of both.

When more water leaves your body than you put in, you become dehydrated and typically have a salt deficit as well. This sodium deficit affects your muscles and energy levels with muscle cramps, fatigue, and headaches as common symptoms.

More extreme fluid loss stemming from nausea and vomiting negatively affects your electrolyte balance even more than sweating. A worker who is nauseous may not be able to keep replenishing fluids, and their symptoms from dehydration and salt depletion will progress more rapidly.

Heat-related illness warning signs

Start by looking for signs of dehydration before it progresses to heat exhaustion. Excessive thirst, headaches that don't go away with increased fluid intake and a break in the shade, muscle cramps, etc. - These are all signs construction workers are suffering from heat stress.

If these symptoms go unnoticed or unresolved, the worker is at risk for serious harm and injury.

How to treat heat stress and heat-related illnesses

If anyone on the job site is displaying HRI symptoms, you need to take immediate action. Stop them from working, move them into the shade, and push clear fluids. Have the person drink water and zero caffeine electrolyte replacement drinks.

Effective drinks include:

- Bottled water
- Pedialyte
- Powerade
- Gatorade

Keep a close eye on the individual. If they recover with fluids and shade, send them home for the day. If they do not recover, or they deteriorate and show signs of heat exhaustion call 911. Then, move them indoors and into an air conditioned space if possible. Stay with the patient until EMS arrives.

DO NOT put ice-cold water on a construction worker suffering heat exhaustion or heat stroke as this can cause them to go into shock, making the situation worse.

Heat stress prevention best practices

When working in heat on the construction site, it's important to keep the following heat stress prevention tips in mind:

1. Stay hydrated

Drink more water and fluids than you think you need on the construction site in hot or humid months. If you wait to drink only when you are thirsty, dehydration has already begun.

On average, construction workers sweat between 27 oz. and 47 oz. per hour during strenuous work. Compare this amount to 16.9 oz. water bottles you commonly see on construction sites, and it is easy to see how someone could get dehydrated even if they are consuming 1 bottler per hour.

2. Take breaks

Take frequent breaks from the sun and heat. Find and use air conditioned shade when it is available and provide shade with pop-up tents when no other shade is available on your construction site.

It's recommended for tradespeople and construction workers to take more breaks in the summer months to allow their bodies to cool down and give them a chance to hydrate.

3. Take time to adapt

Allow your body to adapt. It can take up to two weeks for a healthy construction worker to acclimatize in a hot environment. Be especially watchful of people who may be new to the environment as they are less likely to be aware of the signs of dehydration and heat stress.

4. Adjust starting time

Adjust the starting time for construction work if possible. Many jobs outdoors start much earlier in the day during the summer months to keep workers out of the intense heat of the afternoon sun.

If the schedule allows, move your starting times or strenuous work time accordingly, so you can safely work around the hottest time of the day.

Take heat stress seriously when working in heat

Know the signs of HRIs and heat stress in workers on the construction site. Having an attitude of being tough and pushing through the pain could have lethal consequences.

Have a plan and supplies in place for dealing with heat stress on your construction site. Always call 911 for anyone you feel may be in danger of heat exhaustion or heat stroke.