Preventing Heat-Related Illnesses Meeting Kit

What’s At Stake

When the body heats up faster than it can cool itself, mild to severe illness may develop. Air temperature, humidity, and clothing can increase the risk of developing heat-related illness. Age, weight, physical fitness, and nutrition can play a role. So can alcohol, drug use, or pre-existing diseases like diabetes.

What’s the Danger

WORKERS NEED TO KNOW ABOUT SYMPTOMS OF HEAT-RELATED ILLNESS

Someone with a mild reaction to heat may have a rash called prickly heat. They can also have painful muscle spasms called heat cramps. These can happen during or after activity. A mild reaction may also include fatigue or dizziness. You may notice a change in physical or mental performance and an increase in accidents.

A moderate reaction to heat is heat exhaustion. A person could be sweating a lot. They could have cold, moist, pale, or flushed skin. They might have thirst, extreme weakness, or fatigue, as well as a headache, nausea, a lack of appetite, a rapid weak pulse, or giddiness. If not treated, the victim may collapse.

In severe cases of heat illness, heat stroke may result. This is an emergency! With heat stroke, the victim’s face flushes red, and their skin is hot and dry with no sweating. They could develop a severe headache with deep, rapid breathing, a very high fever, and may become delirious. They may become unconscious, have convulsions, or lapse into a coma. This condition could be fatal unless you get emergency medical treatment—call for medical help immediately. In the meantime, get the victim out of the hot environment. Loosen clothing and pour water over the entire body. Get air circulating around the body.

HOW TO PROTECT YOURSELF

WHAT WORKERS NEED TO DO TO AVOID HEAT ILLNESS

- Drink water – drink small amounts of water frequently, about a cup every 15-20 minutes. The importance of doing this cannot be overstated. In some heat related deaths, water was available, but workers did not drink.
- Limit exposure time and/or temperature – try to schedule hot jobs for cooler times of the day or cooler seasons of the year. Take rest breaks in cool areas. Add more workers to reduce workload or reduce the workday
- Take time to acclimate – workers are at greatest risk with the sudden onset of heat. Gradually adapting to heat will reduce the severity of heat stress.
- Implement engineering controls – mechanize heavy jobs by shifting from working by hand to using machines or increase air movement with fans or coolers.
- Wear loose, light-colored clothing – clothing can affect heat buildup.
- Avoid using salt tablets – taking salt tablets can raise blood pressure, cause stomach ulcers, and seriously affect workers with heart disease.

BEST HEAT-RELATED PREVENTION PRACTICES

A. Hydration. Water accounts for 60% of body weight, 75% of muscles and 80% of the brain. It is, literally, the foundation for all life.

When exposed to extreme heat for too long, sweat production increases to more rapidly cool down the body. This process itself is a good thing. Where it becomes an issue is when the water and salt lost through excess sweating isn’t being replaced quickly enough to sustain the thermoregulation process—inducing dehydration and putting workers on a fast track to heat-related illness.

OSHA recommends workers gradually replace lost fluids with 5-7oz of water every 20 minutes. For jobs lasting longer than two hours,

electrolyte beverages should also be provided to help workers replace the salt (a.k.a. electrolytes) being lost through sweat. Because salt retains water, keeping levels constant is critical to proper hydration.

Unlike athletics where water is often readily available, it's important for workers know to consider that working in the heat comes with its own logistical challenges to keep crews chugging. Many worksites are relatively remote (think underground or at-heights) which can make it much harder to continuously supply cool fresh water. Beyond that, workers are often wearing heavy PPE that can be a hassle to remove every time they need to take a sip.

It's important for workers to know importance of water intake and to recognize symptoms of dehydration.

B. Acclimatization To Heat. Even though almost 70% of heat-related illnesses occur within the first few days of extreme heat, acclimatization remains one of the most frequently overlooked, misunderstood, prevention tactics.

Acclimatization rate

Acclimatization generally requires between 7-14 days depending on the extremity of heat in the environment. During the first few days of acclimatization, core temperature and heart rate will be at their highest. Over time, this physical strain will decrease—dramatically improving comfort and overall functioning. Successful acclimatization is indicated by an increase in sweat rate and stoke volume (amount of blood pumped per heartbeat), and a decrease in heart rate, core temperature, skin temperature and sweat salt loss.

C. Work-To-Rest Ratio. Prevention doesn't stop at acclimatization. Even those who have been working in extreme heat for many years can be subject to life-altering heat stress illnesses if safety managers aren't attentive to changing conditions. Once temperatures surpass 75°F, a site's standard work time to rest time ratio needs to be modified.

When modifying work/break times, there are many variables to

consider beyond temperature—including work intensity, time of day, PPE, and equipment, even things like individual worker age and health conditions. Safe working conditions for a 22-year-old are likely not the same as those for a 45-year-old.

D. Body Cooling. The final item for prevention is body cooling. A simple but underutilized strategy, there are a variety of body cooling methods that can be hugely impactful on maintaining safe body temperatures and cooling the surface of the skin. These include things such as shade or the use of cooling PPE to accelerate the evaporation process. Simple acronym can help determine what workers need—Location, Efficacy, Feasibility and Timing.

HEAT – RELATED PREVENTION CAPSULE

- Start slowly and reduce work intensity and duration.
- Acclimatize in the heat of the day, reserve harder work for the coolest times.
- Use work and rest to modify heat strain Ensure four to fourteen days of exposure (depending on environment).

FINAL WORD

Employers should train supervisors and workers on how to control and recognize heat hazards. Workers should also know about first aid for heat illness. Training should always be conducted in a language workers understand.