

## Preventing Heat Illness

Heat-related illness, also called hyperthermia, is a condition resulting from exposure to extreme heat where the body becomes unable to properly cool—resulting in a rapid rise in body temperature. The evaporation of sweat is the normal way to remove body heat but when the humidity is high, sweat does not evaporate as quickly. This, in turn, prevents the body from releasing heat quickly.

Outdoor industries such as construction, landscaping, and agriculture are widely known to present the risk of heat illness. However, many indoor environments such as commercial kitchens, boiler rooms, laundry rooms, and attics present artificially hot and humid conditions but carry the same risk (if not worse) and are often overlooked.

The Risk Control Consulting Team at Alliant continues to provide guidance to help you protect workers from heat illness, which can cause injury or even death. This Risk Alert will aid in preparing for and responding to:

- Heat illness in unacclimatized workers
- Heat illness symptoms and actions (link to training document on page 3)

### Safe Practices

Heat-related illnesses fall under OSHA's general duty clause of *providing a workplace free of known safety hazards*. In 2011, OSHA launched a Heat Illness Prevention campaign with a goal to educate employers and workers of the dangers of working in the heat.

Some states such as California, Washington, and Minnesota have specific program requirements that employers must have in place to safeguard employees from this workplace hazard. Determine if your organization has a Heat Illness Prevention plan in place to address outdoor work or at-risk indoor job tasks, even if not required by your state. We have included links to resources on the last page.

### Focused Risk Factor for Heat-Related Illness

#### Acclimatization

According to the Occupational Safety & Health Administration (OSHA), approximately half of the heat-related deaths occur on the worker's very first day on the job, and more than 70% occur during the worker's first week on the job.

Heat acclimatization is the body's improvement in heat tolerance that comes from gradually increasing the intensity or duration of work performed in hot settings. The best way to

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acclimatize a worker to heat is to increase the workload performed in a hot setting gradually over a period of one to two weeks.



Acclimatization is lost after about one week away from work. After approximately one month away from working in the heat, most individuals' heat tolerance will have returned to a base-line level. Working for one to two days in cooler conditions or taking breaks in air conditioning is not likely to affect acclimatization.

Acclimatization results from the following changes in the way the body works:

- Body produces more sweat = more evaporative cooling
- Sweat contains less salt = less likely to develop electrolyte imbalances and heat cramps
- Body is more efficient at getting rid of heat = slower heart rate and slower body temperature increase
- More blood flows to the skin = more efficient cooling through the skin

## Tips for acclimatization include:

- Gradually increasing work time in hot conditions over a period of one to two weeks with cooling and hydration between shifts.
- Typically, acclimatization requires at least two hours per day of heat exposure, which can be broken into two, one-hour periods.
- The body will acclimatize to the level of work demanded of it. Simply being in a hot place is not sufficient. For example, only completing "light" or brief work in heat will only acclimatize the worker to "light" or brief work.
- Stay hydrated as dehydration reduces the benefits of heat acclimatization

## Approaches for New Workers or Workers who have lost acclimatization

New employees need time to acclimatize unless they have previously worked in hot environments and have not lost their level of acclimatization. To prevent heat-related illnesses, new workers should work fewer hours in the heat during their first one to two weeks. OSHA and the National Institute for Occupational Safety & Health (NIOSH) recommend the "Rule of 20%" for building heat tolerance.

- *20% First day:* A new worker should work only 20% of the normal duration on their first day.
- *20% Each additional day:* Increase work duration by 20% on subsequent days until the worker is performing a normal schedule.

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## Existing workers are at increased risk of heat-related illness in these situations:

- When they return to warmer work environments after an absence of one week or more.
- When temperatures first begin to increase in the spring or early summer.
- Whenever the weather is significantly warmer than on previous days.

In the above situations, employers should allow workers to gain heat tolerance gradually. Use the same protection strategies that are used for new workers. Maintain the additional heat protections for at least one week. Unacclimatized workers who feel fine on their first day in warm conditions might develop heat-related illness on a subsequent day.

## Heat Waves

Does your organization have a plan for addressing employee exposure to heat during a heat wave? Your plan should include reviewing the National Weather Service forecast for your area and having a work plan response when heat advisory or warnings are issued. Plans should include changes to work activities (ex. less outdoor work activity during heat waves) and work times (such as starting earlier in the day during cooler hours) to reduce the heat exposure to employees.

## Heat Illness: Know the Signs & Symptoms

Before temperatures climb, review the signs and symptoms of heat illness with your employees. [Visit this link](#) to review and utilize the “Heat Illness–Signs & Symptoms” training brief.

## Resources

*Heat–Occupational Safety and Health Administration (OSHA)*  
<https://www.osha.gov/heat-exposure/standards>

*Heat Illness Planning and Supervision (OSHA)*  
<https://www.osha.gov/heat-exposure/planning>

*California–Heat Illness Prevention in Outdoor Places of Employment*  
<https://www.dir.ca.gov/title8/3395.html>

*Minnesota–Indoor Ventilation and Temperature in Places of Employment*  
<https://www.revisor.mn.gov/rules/5205.0110/>

*Washington–Outdoor Heat Exposure*  
<https://app.leg.wa.gov/WAC/default.aspx?cite=296-62&full=true#296-62-095>

*Heat Stress Acclimatization–Centers for Disease Control & Prevention (CDC)*  
<https://www.cdc.gov/niosh/mining/userfiles/works/pdfs/2017-124.pdf>

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