

A Snapshot in Safety and Risk

Heat Illness Prevention & Best Practices

Dozens of workers die and thousands more suffer illness while working in hot or humid conditions. Heat illness or heat stress, a serious medical condition resulting from the body's inability to cope with a particular heat load, is preventable.

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.

Heat-related illness falls under OSHA's General Duty clause of providing a workplace free of known safety hazards. Some states (including 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. There are links to resources on the last page.

Prevention of Heat-related Illness

General Prevention Practices

Planning for potential heat illness is part of a good safety program. Some general prevention practices include the following:

- Provide cool drinking water to employees (1 quart/hour per employee)
- Have employees drink small amounts of water at regular intervals (1 cup every 15-20 minutes).
- Schedule the heaviest, most intensive work at cooler times of the day
- Take regular cool-down breaks in cool/shaded areas to prevent overheating
- Understand the effect of humidity and heat index on the human body.
- Add workers to allow for rotation, reduce workload, or the shortened workday.
- Utilize engineering controls to keep worksite temperatures to adaptable levels. This can include fans, canopies, and shading of equipment operators to lessen the sun's intensity.
- Wear hats and loose lightweight clothing if the job allows. Try to take into account the effects of heat and humidity when selecting the type of PPE (Personal Protective Equipment) to be used.

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- Monitor the environmental conditions at least hourly and check worker response to the heated conditions. Workers may not realize there is a problem or be hesitant to verbalize discomfort.
- Provide effective communication by voice or electronic means so employees can contact a supervisor when necessary. If electronic (cell phone or two-way radio), ensure the signal is reliable.
- Provide monitoring of employees for heat illness symptoms through direct supervision, a buddy system, or regular communication with radio.
- Conduct pre-shift huddles to review protection measures against heat illness.
- Implement emergency response procedures in the event an employee suffers heat-related illness.
- Train your staff annually on risk factors, the importance of drinking water, signs and symptoms of heat illness, the importance of acclimatization, and reporting signs/symptoms to an employer.

Ensure Workers Are Acclimated

New Workers or Workers Who Have Lost 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 over 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 acclimatize a worker to heat is to increase the workload performed in a hot setting gradually over a period of 1-2 weeks.



Acclimatization is lost after about 1 week away from work. After approximately 1 month away from working in the heat, most individuals' heat tolerance will have returned to a base line level. Working for 1-2 days in cooler conditions or taking breaks in air conditioning is not likely to affect acclimatization.

Tips for acclimatization include:

- Gradually increase work time in hot conditions over a period of 1-2 weeks with cooling and hydration between shifts.
- Typically, acclimatization requires at least 2 hours per day of heat exposure (which can be broken into two, 1-hour periods).

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- 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

OSHA and the [National Institute for Occupational Safety & Health](#) (NIOSH) recommend the “Rule of 20 percent” for building heat tolerance.

- *20% First Day:* New workers should work only 20 percent of the normal duration on their first day
- *20% Each Additional Day:* Increase work duration by 20 percent on subsequent days until the worker is performing a normal schedule

Heat Waves

Does your organization have a plan for addressing employee exposure to heat during a heat wave? A sudden temperature increase, compared to previous days constitutes a “heat wave”. Your plan should include reviewing the National Weather Service forecast for your area and having a work plan response when heat advisories 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 heat exposure to employees.

Evaluate Employees, Know the Symptoms and Plan for Actions to Take

Identify Susceptible Employees

Employers should recognize that not all workers tolerate heat the same way. Heat tolerance happens for a variety of reasons. Knowing that there are certain risk factors that put some employees at higher risk can make the difference in preventing heat-related illness before it's too late. Educate/train your employees about personal factors and consider implementing an occupational medical monitoring program that identifies workers who are at increased risk of heat-related illness. Some more prominent risk factors include:

- High blood pressure
- Heart disease
- Lower levels of physical fitness
- Obesity (body mass index > 30)
- Prior heat illness
- Use of certain prescription medications (water pills, psychiatric or blood pressure medicines)
- Alcohol and/or Drug Use (illicit and prescription drugs)

The list is not comprehensive. There are other medical conditions that predispose employees to heat-related illnesses.

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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.](#)

Heat illness signs and symptoms
 Watch for signs of heat illness and act quickly. When in doubt, call 911.

If a worker experiences:

- Headache or nausea
- Weakness or dizziness
- Heavy sweating or hot, dry skin
- Elevated body temperature
- Thirst
- Decreased urine output

Take these actions:

- » Give cool water to drink
- » Remove unnecessary clothing
- » Move to a cooler area
- » Cool with water, ice, or a fan
- » Do not leave alone
- » Seek medical care (if needed)

Know the Actions to Take

- Procedures for contacting emergency services. Be prepared with specific location information to expedite the response time.
- Appropriate work/rest cycles (mandatory rest breaks) when heat stress is high. This means planning for weather and work activities must be managed daily.
- Taking rest breaks in areas that are cooler than the worksite, including shade or air-conditioned rooms.

Additional Tips:

Consider implementing procedures for jobs performance during periods of high heat even if not required by your state laws. These can include:

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| 1 | Providing effective communication by voice or electronic means so employees can contact a supervisor when necessary. If electronic, ensure the signal is reliable |
| 2 | Providing monitoring of employees for heat illness symptoms through direct supervision, a buddy system, or regular communication with radio. |
| 3 | Reminding employees frequently to stay hydrated (8 oz. every 15-20 minutes). Drinking at shorter intervals more frequently is more effective than drinking large amounts less frequently |

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| 4 | Conducting pre-shift huddles to review protection measures against heat illness |
| 5 | Establishing and training on procedures for emergency response in the event an employee suffers heat-related illness |

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>

California Heat Illness Prevention eTool
<https://www.dir.ca.gov/dosh/etools/08-006/index.htm>

Minnesota – Heat Stress
https://mn.gov/admin/assets/heat_stress_guide_tcm36-207189.pdf

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

Washington – Beat Heat Smart!
<https://www.lni.wa.gov/safety-health/safety-training-materials/workshops-events/beheatsmart#requirements>

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

OSHA-NIOSH Heat Safety Tool App
<https://www.cdc.gov/niosh/topics/heatstress/heatapp.html>

Tribal First Resource Center – Resource Library
<https://www.tribalfirst.com/risk-management-solutions/resource-center/resource-library/>

For additional information contact:
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