

BWC SAFETY BULLETIN

Minimize the
impact of heat
stress on workers.



Heat Stress

High temperatures increase the likelihood of heat stress affecting workers.

In August 2018, a 58-year-old Ohio warehouse worker was working in a sitting position. It was a hot day and temperatures increased steadily in the poorly ventilated warehouse. As he went to stand, he became dizzy and fell unconscious, resulting in a fall in which he hit his head. The resulting injuries led to a lost time incident, with the worker taking several days to return to work.

Effects of Heat Stress

The human body naturally cools itself via sweating and increased blood flow to the skin. When working in high-temperature areas for extended periods of time, this cooling process can be disrupted. If conditions prevent the worker from cooling down, a heat-related illness may occur. Effects of heat stress may range in severity from the early symptoms of heat exhaustion to the more severe symptoms of heat stroke, which may lead to severe illness, hospitalization, and death.

Symptoms of heat exhaustion

- o Fatigue.
- o Irritability.
- o Thirst.
- o Nausea or vomiting.
- o Dizziness or lightheadedness.
- o Heavy sweating.
- o Elevated body temperature.
- o Fast heart rate.

Symptoms of heat stroke

- o Confusion.
- o Slurred speech.
- o Unconsciousness.
- o Seizures.
- o Very high body temperature.
- o Rapid heart rate.

Risk Factors

- Physical activity, especially for extended periods of time.
- Conditions including elevated air temperature, elevated humidity, sunlight, and minimal air movement.
- Heat sources, such as molten metal/glass, ovens, and hot surfaces (e.g., roofing, asphalt, etc.).
- Clothing that hampers the body's ability to lose excess heat, such as protective gear.
- Personal risk factors including having past episodes of heat-related illness, lack of physical fitness, medical conditions, consumption of drugs or alcohol, and use of certain medications.
- Work that is performed outdoors during warm temperatures or indoors in warm environments (e.g., manufacturing hot work, school kitchens, etc.).

Prevention

Acclimatization acts as a control against heat stress. It allows workers to be gradually introduced to hot working conditions, which helps to increase heat resistance. Employers should monitor new workers for 14 days to ensure they build heat tolerance, provide additional breaks or shorter shifts, and encourage workers to stay hydrated. Non-physically fit workers require more time to build heat tolerance. Re-acclimatization may be necessary for workers returning from an absence of more than a few days.

Job rotation, frequent breaks, scheduling work for cooler parts of the day, and providing water may be used to help reduce risk of heat stress in acclimatized workers. Train supervisors and workers to recognize heat stress symptoms and prevention methods. Workers should avoid working alone when possible in high temperature and high humidity conditions. Depending on where work is being performed, engineering controls such as air conditioning and increased ventilation may be used. Monitoring body temperature and heart rate can help determine optimal controls for individual workers in high-temperature settings.



First Aid

If a worker begins developing symptoms of heat exhaustion or heat stroke, take the following actions:

- Take the affected worker to a cooler area. Use active cooling techniques to cool the worker immediately by immersing in cold water or an ice bath, using fans to circulate air around the worker, removing outer layers of clothing, and placing ice or cold towels on the head, neck, trunk, and armpits.
- If you observe heat stroke symptoms, call 911 immediately. When in doubt, call 911. Heat-related illnesses may appear less severe than they really are.
- Never leave a worker with heat-related illness alone; the illness may worsen rapidly.

Have questions about safety? We can help. We provide virtual and on-site consultation services to employers at no additional cost. You can request our services at www.bwc.ohio.gov or by phone at **1-800-644-6292**.

We also offer the Public Employment Risk Reduction Program, which focuses on the unique safety needs of Ohio public employers (**1-800-671-6858**) and the OSHA On-Site Consultation Program, which focuses on safety and health assistance for small- to medium-sized, high-hazard private employers (**1-800-282-1425**).

Other resources

- [National Institute for Occupational Safety and Health \(NIOSH\)'s Heat Stress page](#)
- [NIOSH Science Blog: Take Action Now to Prevent Heat-Related Illness at Work](#)
- [National Integrated Heat Health Information System's Home page](#)
- [Occupational Safety and Health Administration \(OSHA\)'s Heat page](#)

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