Heat-Related Illnesses and First Aid

Most outdoor fatalities, 50% to 70%, occur in the first few days of working in warm or hot environments because the body needs to build a tolerance to the heat gradually over time. The process of building tolerance is called heat acclimatization. Lack of acclimatization represents a major risk factor for fatal outcomes.

Occupational risk factors for heat illness include heavy physical activity, warm or hot environmental conditions, lack of acclimatization, and wearing clothing that holds in body heat. (See also, personal risk factors, at the link at the end of this article.)

Hazardous heat exposure can occur indoors or outdoors and can occur during any season if the conditions are right, not only during heat waves.

Several heat-related illnesses can affect workers. Some of the symptoms are non-specific. This means that when a worker is performing physical labor in a warm environment, any unusual symptom can be a sign of overheating.

Heat-Related Illness	Symptoms and Signs
Heat stroke	▪ Confusion ▪ Slurred speech ▪ Unconsciousness ▪ Seizures ▪ Heavy sweating or hot, dry skin ▪ Very high body temperature ▪ Rapid heart rate
Heat exhaustion	▪ Fatigue ▪ Irritability ▪ Thirst ▪ Nausea or vomiting ▪ Dizziness or lightheadedness

	▪ Heavy sweating ▪ Elevated body temperature or fast heart rate
Heat cramps	▪ Muscle spasms or pain ▪ Usually in legs, arms, or trunk
Heat syncope	▪ Fainting ▪ Dizziness
Heat rash	▪ Clusters of red bumps on skin ▪ Often appears on neck, upper chest, and skin folds
Rhabdomyolysis (muscle breakdown)	▪ Muscle pain ▪ Dark urine or reduced urine output ▪ Weakness

Prevention

Workers who have not spent time recently in warm or hot environments and/or being physically active will need time to build tolerance (acclimatize or, less frequently used, acclimate) to the heat. During their first few days in warm or hot environments, employers should encourage workers to:

- Consume adequate fluids (water and sport drinks)
- work shorter shifts,
- take frequent breaks, and
- quickly identify any heat illness symptoms. Take emergency actions as needed.

Employers and workers should become familiar with the heat symptoms. When any of these symptoms are present, promptly provide first aid. Do not try to diagnose which illness is occurring. Diagnosis is often difficult because symptoms of multiple heat-related illnesses can occur together. Time is of the essence. These conditions can worsen quickly and result in fatalities.

When in doubt, cool the worker and call 911.

See below for further first aid recommendations.

First Aid

OSHA's Medical Services and First Aid standard and the Medical Service and First Aid in Construction require the ready availability of first aid personnel and equipment. First aid for heat-related illness involves the following principles:

- Take the affected worker to a cooler area (e.g., shade or air conditioning).
- Cool the worker immediately. Use active cooling techniques such as:
  - Immerse the worker in cold water or an ice bath. Create the ice bath by placing all available ice into a large container with water, standard practice in sports. **This is the best method to cool workers rapidly in an emergency**.
  - Remove outer layers of clothing, especially heavy protective clothing.
  - Place ice or cold wet towels on the head, neck, trunk, armpits, and groin.
  - Use fans to circulate air around the worker.
- Never leave a worker with heat-related illness alone. The illness can rapidly become worse. Stay with the worker.
- When in doubt, call 911!

Confusion, slurred speech, or unconsciousness are signs of heat stroke. **When these types of symptoms are present, call 911 immediately and cool the worker with ice or cold water until help arrives**.

Workers who are new to working in warm environments are at increased risk of heat-related illness. See the Protecting New Workers section of this website for more details. **Especially during a worker's first few days, absolutely all symptoms should be taken seriously. Workers who develop symptoms should be allowed to stop working. They should receive evaluation for possible heat-related illness**.

Training

Supervisors and workers should be trained about heat hazards. They should also learn about prevention and first aid. Topics should include:

- Types of heat-related illness, including how to recognize common signs and symptoms.
- Importance of immediately providing first aid to affected workers.
- Procedures for contacting emergency medical services.
- Importance of protecting new "unacclimatized" workers. This includes work practices to help workers develop acclimatization.
- Job-related and personal risk factors for heat-related illness.
- Fluid replacement guidelines.
- Appropriate work/rest cycles (i.e., mandatory rest breaks) when heat stress is high.
- Importance of taking rest breaks in areas that are cooler than the worksite—for example, shade or air-conditioned rooms.

Source and more information: https://www.osha.gov/SLTC/heatstress/index.html