



Heat Illness Prevention Safety Meeting

When temperatures get hot, your body - much like a car - can overheat if pushed too hard. Heat exposure poses serious health risks such as illness, injury, or death. Working in high heat also affects mental capacity and motor coordination, which leads to more accidents. Don't be misled, hazardous heat exposure can occur indoors or outdoors, and can occur during any season if the conditions are right, not only during heat waves. To protect yourself and others you should know how to avoid heat illness, how to recognize the symptoms, and the first-aid treatment that is required.

Heat Illness Risk Factors:

Environmental Risk Factors:

- Temperature
- Humidity
- Radiant heat (e.g., ovens or furnaces, heat-absorbing roofs, and road surfaces)
- Air velocity (no breeze or wind)

Occupational Risk Factors

- Heavy physical activity
- Warm or hot environmental conditions
- Low liquid intake
- Lack of acclimatization
- Wearing clothing that holds in body heat (dark colors or waterproof)

Personal risk factors

- Increased age
- Medical conditions
- Lack of physical fitness / overweight
- Previous episodes of heat-related illness
- Alcohol consumption
- Drugs and certain medications

**Employers should also consider an individual worker's physical condition when determining his or her fitness for working in hot environments.*

What is a Heat-Related Illness?

- In a warm environment, especially when physically active, the body maintains a stable internal temperature by circulating blood to the skin. This increases skin temperature and allows the body to give off its excess heat through the skin (as sweat). However, if the muscles are being used for physical labor, less blood is available to flow to the skin and release the heat.
- Sweating is effective only if the humidity level is low enough to permit evaporation and if the fluids and salts lost are adequately replaced.
- **If the body cannot dispose of excess heat, it will store it. When this happens, the body's core temperature rises, and the heart rate increases.** As the body continues to store heat, the individual begins to lose concentration and has difficulty focusing on a task, may become irritable or sick, and often loses the desire to drink. The next state is most often fainting, and death is possible if the person is not removed from the heat stress.

Three Major Forms of Heat Illness:

- 1. Heat Cramps:** Usually affect workers who sweat a lot during strenuous activity. Sweating depletes the body's salt and water levels. Low salt levels in muscles cause painful cramps.
 - ▶ Symptoms:
 - Severe muscle cramps that may begin suddenly in the back, stomach, arms, and legs
 - ▶ First Aid:
 - Move to a cooler area
 - Drink water
 - Have a snack that replaces carbohydrates and electrolytes (such as a sports drink) every 15 minutes
 - Follow up with a medical examination
- 2. Heat Exhaustion:** This is a dangerous condition for people who do not receive help quickly. It often occurs when perspiration evaporates too slowly to properly cool the body.
 - ▶ Symptoms:
 - Characterized by pale and clammy skin and profuse sweating
 - Weakness, headache, nausea, vomiting, and fast pulse
 - ▶ First Aid:
 - Move the person to a cooler area
 - Remove unnecessary clothing such as shoes and socks
 - Keep them lying down with legs slightly elevated

- Cool the body by fanning and applying cool compresses
- Encourage frequent sips of cool water
- Follow up with a medical examination

3. Heat Stroke: This is the most serious heat-related illness, and it occurs when the body can no longer control its temperature. The body's temperature rises rapidly, the sweating mechanism fails, and the body is unable to cool down. Heat stroke can cause permanent disability or death if the person does not receive emergency treatment.

▶ Symptoms:

- Confusion, slurred speech, loss of consciousness
- High body temperature, hot dry/skin
- Rapid breathing/pulse
- Seizures

▶ First Aid:

- Heat stroke is life threatening - move fast - *call 911 immediately!*
- Stay with the worker until help arrives
- Move them to a cooler area
- Remove outer clothing
- Immerse the victim in cool water, or apply cool wet towels or cloths to the body
- Place cold compresses on head, neck armpits and groin
- Give no liquids

Heat Illness Prevention:

Education – Establish a heat illness prevention program and provide education on the hazards leading to heat stress and how to prevent them.

Drink water – employers should provide plenty of drinking water at the work site. **The possibility of heat illness can be reduced by drinking lots of fluids on hot days.** The importance of this cannot be overstated. In some heat related deaths, water was available, but workers did not drink it. Drink small amounts of water frequently, about a cup (8 oz.) every 15-20 minutes. Avoid liquids containing alcohol or caffeine, as they tend to increase urination causing rapid depletion of body liquid.

Limit exposure – Avoid over-exertion during peak temperature times and arrange frequent rest periods in cool areas. If possible, heavy work should be scheduled during cooler parts of the day. Add more workers to reduce workload or reduce the workday.

Take time to acclimate – Heat acclimatization is the improvement in heat tolerance that comes from gradually increasing the intensity or duration of work performed in a hot setting. New employees and workers returning from an absence of 1 week or more should have a 5-day period of acclimatization. This period should begin with 50% of the normal workload and time exposure the first day and gradually building up to 100% by the 5th day. Most workers should be able to safely handle a full workload after 4 days of gradual increase, even though they will usually not be fully acclimatized until 2 weeks after exposure starts.

Wear loose, light- colored clothing – Clothing can trap heat and increase body temperature. Consider protective clothing that provides cooling.

Implement engineering controls- Increase air movement with ventilation systems, evaporative cooling, mechanical refrigeration, or fans. Reduce manual labor by using machines for heavy jobs.

Practical Tips To Prevent Heat Illness:

- 1) Drink plenty of fluids such as water, Gatorade, and other drinks with electrolytes
- 2) Wear loose, light colored clothes
- 3) Increase ventilation with fans and open roof vents
- 4) Provide a place of shade out of the sun for outdoor workers, consider umbrellas
- 5) If in a building, consider applying heat reflective chemical paint
- 6) Consider the use of fan misters that provide a light water spray
- 7) Limit or schedule outside work to early AM or late PM when it is cooler

Heat Illness Prevention Test

1. Which of the following factors affects heat illness?
 - a. Age
 - b. Prior history of heat-related illness
 - c. Overweight
 - d. All of the above

2. In very high humidity, your body may be unable to cool itself down because _____.
 - a. Humidity causes increased heat rate
 - b. Humidity may be the same or greater than the internal body temperature
 - c. Humidity may prevent evaporation of sweat
 - d. Humidity prevents blood being brought to the skin's surface

3. The most serious of all heat-related illness is _____, which can result in death if left untreated.
 - a. Heat exhaustion
 - b. Dehydration
 - c. Heat cramps
 - d. Heat stroke

4. To treat a victim of heat stroke, perform all of the following EXCEPT:
 - a. Leave victim alone in a cool area
 - b. Immerse victim in cool water
 - c. Fan and apply cold compresses
 - d. Remove clothing such as shoes and socks

5. Which of the following are most likely to put you at risk for a heat disorder:
 - a. Wearing light colored clothing while working outdoors
 - b. Wearing personal protective equipment in a climate-controlled environment
 - c. Wearing dark colored clothing while working outdoors
 - d. Taking periodic breaks during physical tasks in the heat

6. If you are returning from vacation or an extended absence, your body undergoes a period of adjustment known as "acclimatization." It takes _____ for the body to become fully acclimatized.
 - a. 5 days
 - b. 4 days
 - c. 2 weeks
 - d. 8 hours

7. If you are working strenuously and sweating heavily, make sure you replenish body fluids by drinking:
 - a. 8 oz. of water every day
 - b. 8 oz. of water every hour
 - c. 8 oz. of water every 15-20 minutes
 - d. 8 oz. of a sports drink every 15-20 minutes

8. When scheduling works tasks, if possible, try to perform most physically intense work:
 - a. Just before noon
 - b. In the early morning or evening
 - c. In the early afternoon
 - d. Mid-afternoon

9. What happens to the body when it cannot dispose of excess heat?
 - a. Heart rate decreases
 - b. Core temperature rises
 - c. Excessive thirst
 - d. All of the above

10. Which heat related illness is characterized by pale, clammy skin and profuse sweating?
 - a. Heat stroke
 - b. Heat rash
 - c. Heat cramps
 - d. Heat exhaustion

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