

# Heat stress

By Joe Hammond

## Before you begin

Review the reference section's Web sites at the end of this section. Become familiar with ways to prevent heat stress for your employees. Ask group members to list how they deal with heat-stress related symptoms at home and on the job.



## Introduction

Statistics show a rise in temperature can affect workplaces in a negative way. The increased number of injuries and illnesses that crop up during the spring and summer seasons reflects this fact.

Heat stress or hyperthermia symptoms can range from minor illnesses to fatalities if the victim does not seek or get relief quickly.

The information in this discussion is vital for your safety at work, but it is also relevant for you and your family away from work.

Ask what types of incidents can result from working in hot environments. Answers include:

- Falls occurring on the same level or falls from a higher to a lower level, falls into machinery and equipment, etc.;
- Danger to the worker operating tools or equipment, and to other workers nearby.

## Heat-related illnesses

Seek input by asking if anyone can name and define any of the heat-related illnesses listed below.

The list shows heat-related ailments workers may get (in ascending order from the least harmful to the most dangerous).

**Heat rash** — Excessive sweating during hot, humid weather causes this skin irritation, also known as prickly heat. Though not usually harmful, good hygiene and changes of clothing can control the discomfort it causes. It most often affects areas of the body that do not receive good ventilation.

**Heat cramps** — Everyone has probably experienced these painful muscle spasms. Rest and fluid replacement are the prescribed treatments for this ailment.

**Heat syncope** — The body attempts to send blood out from core areas surrounding the internal organs to the skin's surface, where it can be cooled. Heat syncope occurs when this process breaks down and blood gathers and pools in the lower extremities. The victim is likely to faint due to poor blood circulation. To allow blood and body fluids to return to the upper part of the body's core area, the victim should lie down with his or her feet elevated.

**Heat exhaustion** — This is a dangerous condition for victims who do not receive quick help. The victim usually feels weak, has an elevated body temperature, and therefore, appears flushed. You should take the victim to a cooler, shaded environment and give him or her fluids right away.

**Heat stroke** — This is by far the most dangerous heat-related ailment. It happens when the body's cooling defense mechanisms become overwhelmed resulting in a continually rising core body temperature, permanent brain damage and even death. You should make every effort to immediately lower the victim's temperature with whatever means are at hand. Remember to never give liquids orally to an unconscious person because this could cause serious injury and/or death.

### Heat-stress exposure

Ask what can you do to handle periods of heat-stress exposure. Try to draw out suggestions such as:

- Begin shifts earlier in the day;
- Provide good air ventilation (when the air temperature is lower than body temperature);
- Provide cool water and make sure workers can drink it on a regular basis;
- Promote workers beginning their shifts fully hydrated and allow them to consume fluids at will;
- Design a work/rest regimen that decreases the work rate/load;
- Develop a heat stress program that includes:
  - Training;
  - Health screening;
  - Acclimatization;
  - First-aid providers.

### Fluids

Ask for ideas about what fluids are best for re-hydration.

The first choice should be water. Encourage workers to drink one cup of cool water every 15 to 20 minutes even if they are not thirsty.

Around 60 percent of our body's composition is water. Therefore, we should replenish our loss of fluids through perspiration by regularly drinking water. Make sure everyone understands thirst is not a good indicator that body fluids need replacement.

For un-acclimatized individuals, adding sliced fresh fruit to a container of water can help bolster lost electrolytes. Since many processed foods contain high amounts of salt, some experts do not recommend sports drinks.

You should avoid drinks that contain caffeine or alcohol. They promote loss of fluids through increased urination.

### Group action

Ask the group members to identify those who are most likely to suffer from the effects of high temperatures and humidity.

Those most likely to suffer adverse effects are:

- Un-acclimatized individuals;
- Obese people;
- Elderly people;
- Pregnant women;
- Individuals under treatment who are taking medication(s).

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BWC always strives to improve the *Safety Leader's Discussion Guide*. Your feedback can help. Please send your comments via e-mail to **Safety@ohiobwc.com**.

## References

### Web sites

- Heat Stress (Occupational Safety and Health Administration): [www.osha.gov/SLTC/heatstress/index.html](http://www.osha.gov/SLTC/heatstress/index.html)
- Heat Stress (National Institute for Occupational Safety and Health): [www.cdc.gov/niosh/topics/heatstress](http://www.cdc.gov/niosh/topics/heatstress)
- Heat Stress (National Ag Safety Database): [www.nasdonline.org/document/137/d001702/heatstress.html](http://www.nasdonline.org/document/137/d001702/heatstress.html)

### Resources

Dr. Robert Murphy, former OSU team physician