

Heat Stress Information

What is heat stress?

Heat stress is a build up of heat in the body to the point where a worker cannot maintain normal body temperature. When workers can't cool themselves by sweating, serious heat illnesses can occur. Working in hot temperatures is a health and safety hazard and can lead to heat stroke, which can be fatal.

What causes heat stress?

Heat stress is caused by a number of factors that usually include:

- High temperatures
- High humidity
- Intensity of physical work
- Whether or not a worker is used to working in hot conditions
- Lack of breaks
- Lack of water
- Poor working conditions
- Lack of air movement and ventilation
- Working in direct sunlight and lack of available shade
- Working near machinery that gives off heat (dishwashers, boilers, etc.)

What happens when you get heat stress?

There are a number of conditions that result from heat stress, they include:

- Heat rashes are one of the most common problems with heat stress. It appears as red bumps on the skin and can feel prickly. Heat rashes are caused by excessive sweat that doesn't evaporate. The rash usually disappears when the worker gets to a cooler environment. Clothing that helps wick away sweat can sometimes prevent heat rashes.
- Heat fatigue often happens when a worker is not acclimatized to working in hot temperatures. It causes workers to react slowly and have impaired concentration. Workers must get out of the heat before more serious conditions develop.
- Heat cramps usually happen from hard physical labour in a hot environment. Cramps are caused by the lack of water. Remember, water must be taken every 15 to 20 minutes in hot environments. Avoid alcohol, coffee, tea and carbonated drinks.
- Heat exhaustion causes headache, nausea, dizziness, blurred vision, weakness, and excessive thirst. Usually a worker's skin is damp and looks muddy or flushed. Workers suffering from heat exhaustion should be removed from the hot environment, given fluids, loosen clothing, shower or sponge bath with cool water and rest in a cool place.
- Heat collapse is very serious and causes fainting and workers may lose consciousness. Heat collapse results from the brain not having enough oxygen because blood goes to the body's extremities. Heat collapse happens very quickly. Affected workers must be moved to a cooler area, and given fluids.

- Heat stroke occurs when the body's internal system of temperature regulation fails and body temperatures rises to harmful levels. Heat stroke is a serious medical emergency. Symptoms of heat stroke are confusion, irrational behaviour, loss of consciousness, convulsions, hot dry skin, lack of sweating (usually), and an abnormally high body temperature. If body temperature is too high workers can die. Emergency responders must be called immediately.

What can be done to prevent heat stress?

To prevent heat stress employers must ensure:

- There is adequate ventilation
- There are shaded areas available when working outdoors
- Water is made available to workers
- There are increased breaks with short work cycles. Get to cool areas during breaks
- More physically demanding work is done in the early morning or evening
- Equipment that generates heat and is not being used is turned off
- Workers who are pregnant do not perform physically demanding work
- Training is provided on how to recognize and prevent heat stress
- Medical help is called if a worker feels sick, dizzy, nauseated, has prickly skin, feels weak or has sudden vision problems
- Hot surfaces in the workplace are shielded or insulated
- Air conditioning and fans are provided
- A proper acclimatizing process is in place for all workers who work in hot environments. Acclimatizing to hot conditions usually takes from one to three weeks and begins with a light workload that gradually builds to a normal workload.

What are the exposure limits for working in hot environments?

Two types of exposure limits are often used: occupational exposure limits and thermal comfort limits. Occupational exposure limits are to protect industrial workers from heat-related illness. Thermal comfort limits are for office work to ensure productivity and quality of work.

ASHRAE Standard 55-1992 Thermal Environmental Conditions for Human Occupancy, recommends the following acceptable temperature ranges at relative humidity (RH) of 50% and air speed less than 0.15 m/sec. (30 fpm).

Concerns of outdoor workers

Outdoor workers have to deal with the sun as an occupational hazard. Although it is a concern for everyone, CUPE members who must work outdoors are at particular risk from the effects of ultraviolet radiation (UVR), which can cause skin cancers.

Reducing UVR exposures include:

- Avoid the mid-day sun
- Work in the shade as much as possible. Portable shade devices should be made available

- Wear protective clothing. Wide brim hats and light-coloured clothing made of tightly woven fabric are some of the best protection from the effects of the sun. The weave of the fabric should allow perspiration to evaporate easily.
- Eyes should be protected by special purpose sunglasses that will filter out both UVA and UVB rays.
- Use sunscreens. There are two types of lotions that can be applied - sunblocks and sunscreens. Sunblock creams such as zinc oxide or titanium dioxide create a barrier, which reflects UVR. Sunscreens absorb UVR and prevent penetration to the skin. Apply the sunscreen 15 to 30 minutes before going in the sun. Spread the sunscreen over all exposed parts of the body, paying particular attention to the nose, ears, neck, lips and any bald spots. Even though "waterproof" sunscreens allow up to 80 minutes between re-application, the Canadian Cancer Society recommends that you re-apply the sunscreen after perspiring heavily or if you get wet. The joint health and safety committee should be involved in the selection of protection and sunscreen that will be used.