



# Heat Stress Awareness Guide

July 2024

## Scope

This guideline is intended for employees of Ontario Tech University. Under the *Occupational Health and Safety Act*, the employer must take every reasonable precaution in the circumstances for the protection of a worker. This may include protecting workers from heat stress. Department Heads/Deans are responsible for handling concerns regarding workplace temperatures. The Environmental, Health & Safety Officer (EHSO) is available to assist as a resource, if required.

## What is Heat Stress?

"Heat stress" is the "net [overall] heat load to which a worker may be exposed from the combined contributions of metabolic heat, environmental factors (i.e., air temperature, humidity, air movement, and radiant heat), and clothing requirements. A mild or moderate heat stress may cause discomfort and may adversely affect performance and safety, but it is not harmful to health. As the heat stress approaches human tolerance limits, the risk of heat-related disorders increases.

The **humidex factor** on a given day also affects the feeling of warmth. This value considers air temperature, combines it with the humidity in the air, and produces a value which corresponds to how warm it **feels** outside.

## Hazards of Heat Stress

Heat stress symptoms are a set of natural signals that indicate a need to balance the body's heating and cooling. As the body heats up, it tries to rid itself of excess heat through the evaporation of sweat. If it is unable to cool itself this way, the body temperature will increase. When body temperature gets above 38-39°C, the brain starts to overheat, leading to a shutdown of the body's cooling system (sweating stops). The body temperature now rises even faster, leading to conditions such as heat rash, cramps, heat exhaustion or heat stroke. The causes, symptoms, and treatment of various heat-related illnesses can be found in [Appendix A](#).

In addition to heat-induced conditions, certain hazards are also common to hot environments. There is a higher frequency of accidents in hot environments.

Direct causes of accidents include:

- Slippery hands from perspiration.
- Skin contact with hot surfaces.
- Fogging of eyeglasses.
- Dizziness or fainting.

Indirect causes of accidents include:

- Physical discomfort.
- Irritability and anger.
- Poor judgment.
- Diverted attention from the task.
- Slower mental and physical reactions.

### **General Control Measures**

- Provide information to workers to recognize the signs and symptoms of heat stress and to know how to avoid them.
- Drink water frequently.
- Workers are encouraged to look out for early signs and symptoms of heat stress in the other.
- Use mechanical aids for material handling – dollies, carts, lifting devices – to reduce physical activity. Organize the work to reduce the pace of activity.
- If possible, postpone strenuous work until a cooler time of the day.
- If work is done outside, take breaks in the shade.
- Avoid eating large meals before working in hot environments.
- Wear light clothing that permits the evaporation of sweat (i.e. cotton clothing)
- Use sunscreen and cover your head if working outside.

## **Reporting**

If you have any concerns about the hazards of heat stress, please inform your supervisor.

If further support is needed, you may engage the Environmental Health and Safety Officer by submitting a [Hazard Reporting Form](#) or emailing [healthandsafety@ontariotechu.ca](mailto:healthandsafety@ontariotechu.ca).

## Additional Resources

[Canadian Centre for Occupational Health and Safety](#)

[Ontario Ministry of Labour, Immigration, Training and Skills Development](#)

[Occupational Health Clinics for Ontario Workers](#)

## Appendix A – Causes, Symptoms, Treatment and Prevention of Heat-related Illnesses

Heat-Related Condition	Cause	Symptoms	Treatment	Prevention
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<b>Heat Rash</b>	Hot humid environment; plugged sweat glands.	Red bumpy rash with severe itching.	Change into dry clothes and avoid hot environments, rinse skin with cool water.	Wash regularly to keep skin clean and dry.
<b>Sun Burn</b>	Too much sun exposure	Red, painful, or blistering and peeling skin.	If the skin blisters, seek medical aid. Use skin lotions (avoid topical anaesthetics) and work in the shade.	Cover skin from sun exposure. Use sunscreen and work in the shade if possible.
<b>Heat Cramps</b>	Heavy sweating drains a person's body of salt, which cannot be replaced just by drinking water	Painful cramps in arms, legs, or stomach that occur suddenly at work or later at home. Heat cramps are serious because they can be a warning of other more dangerous heat-induced illnesses.	Move to a cool area; loosen clothing and drink an electrolyte-replacement beverage, if the cramps are severe or don't go away, seek medical aid	Reduce activity levels and/or heat exposure. Drink fluids regularly. Workers should check on each other to help spot the symptoms that often precede heat stroke.
<b>Fainting</b>	Fluid loss and inadequate water intake	Sudden fainting after at least two hours of work; cool moist skin; weak pulse	GET MEDICAL ATTENTION. Assess need for CPR; move to a cool area; loosen clothing; make person lie down; and when the person is conscious, offer sips of cool water. Fainting may also be due to other illnesses.	Reduce activity levels and/or heat exposure. Drink fluids regularly. Move around and avoid standing in one place for too long. Workers should check on each other to help spot the symptoms that often precede heat stroke.
<b>Heat Exhaustion</b>	Fluid loss and inadequate salt and water intake causes a person's body's cooling system to start to break down.	Heavy sweating; cool moist skin; body temperature over 38°C; weak pulse; normal or low blood pressure; person is tired and weak and has nausea and vomiting; is very thirsty; or is panting or breathing rapidly; vision may be blurred.	GET MEDICAL ATTENTION. This condition can lead to heat stroke, which can cause death quickly. Move the person to a cool shaded area; loosen or remove excess clothing; provide cool water to drink; fan and spray with cool water. Do not leave affected person alone.	Reduce activity levels and/or heat exposure. Drink fluids regularly. Workers should check on each other to help spot the symptoms that often precede heat stroke (i.e. irregular behaviour).
<b>Heat Stroke</b>	There are two types of heat stroke:  Classic heat stroke may occur in older adults and in persons with chronic illnesses exposed to excessive heat. When the body has used up its water and salt reserves, it stops sweating causing	High body temperature (over 40°C) and any one of the following: the person is weak, confused, upset, or acting strangely; has hot, dry, red skin (classic heat stroke) or profusely sweating (exertional heat stroke); a fast pulse; headache or dizziness. In later stages, a person	CALL AMBULANCE. This condition can kill a person quickly. Remove excess clothing; fan and spray the person with cool water; offer sips of cool water if the person is conscious.	Reduce activity levels and/or heat exposure. Drink fluids regularly. Workers should check on each other to help spot the symptoms that often precede heat stroke (i.e. irregular behaviour).

	<p>a rise in body temperature.</p> <p>Exertional heat stroke generally occurs in young persons, who engage in strenuous physical activity for a prolonged period of time in a hot environment and the body's cooling mechanism cannot get rid of the excessive heat.</p> <p>Heat stroke may develop suddenly or may follow from heat exhaustion.</p>	<p>may pass out and have convulsions.</p>		
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*Source: Occupational Health Clinics for Ontario Workers – Heat Stress Awareness Guide.*