

Safety Talk: Heat Stress



Working in a hot environment can be uncomfortable and may also cause adverse health effects. Working in the heat puts stress on the body's cooling system. When heat is combined with other factors like physical activity, air temperature, humidity, loss of fluids, or fatigue, it may lead to heat-related illnesses.

Heat leaves your body in several ways:

- Transfer from skin to air
- Evaporation by perspiration
- Exhaling hot air
- Touching a cool object

Your body must work even harder to get rid of excess heat when conditions are both hot and humid because perspiration can't evaporate as readily under muggy conditions. The process is easier when the surrounding air is moving (cool breeze or fan).

JOB-SPECIFIC CONTROL MEASURES TO REDUCE HEAT STRESS

Some positions at the University of Windsor may require certain tasks to be done in the heat, including groundskeepers, maintenance, and Energy Conversion Centre staff. The following measures should be taken where possible to reduce heat stress:

- Drink at least one cup of water every 20-30 minutes, even if you don't feel thirsty. Water is provided by your department – fill up your bottle prior to the start of your day and during breaks and lunch.
- Use mechanical aids for manual lifting where possible (ie. dollies, carts, etc.)
- Use cooling fans where possible.
- Alter your work/rest schedule. Take breaks as needed and alter your pace of work. Rotate work with coworkers if possible. If you feel tired, weak, or dizzy, take a break.
- Heat stress increases when heavy work is done at temperatures above 30 degrees. Don't push yourself beyond your limits. It could be harmful to your health, and could put you at risk of having an accident.
- Wear sunscreen and cover your head if working outside as part of your personal protective equipment

PERSONAL CONTROL MEASURES TO REDUCE HEAT STRESS

- Hydrate yourself. Water is crucial to helping the body adjust to high temperatures. The rate of water intake must equal the increased rate of water loss by perspiration to keep your body temperature normal.
- Eat smaller but more frequent meals or snacks while working in hot environments
- Avoid alcohol or beverages with caffeine – these make the body lose water and increase the risk of heat stress
- Wear light clothing that permits the evaporation of sweat (ie. cotton clothing).
- Check with your doctor if your medication may affect your heat tolerance
- Make healthy lifestyle choices (ie. body weight, fitness, diet, rest)

HEAT EXPOSURE ILLNESSES

Heat stress symptoms are a set of natural signals telling you that something needs to be done to balance your body's heating and cooling. As your 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, your body temperature will increase. When body temperature gets above 38-39°C, the brain starts to overheat, leading to a shutdown of your body's cooling system (sweating stops). Your temperature now rises even faster, leading to heat stroke and possibly death. The causes, symptoms, and treatment of various heat-related illnesses are listed here:

HEAT RASH	
CAUSES	Hot humid environment; plugged sweat glands
SYMPTOMS	Red bumpy rash with severe itching
TREATMENT	Change into dry clothes and avoid hot environments, rinse skin with cool water

SUNBURN	
CAUSES	Too much exposure to the sun
SYMPTOMS	Red, painful, or blistering and peeling skin
TREATMENT	If the skin blisters, seek medical aid, use skin lotions (avoid topical anaesthetics) and work in the shade

HEAT CRAMPS	
CAUSES	Heavy sweating drains a person's body of salt, which cannot be replaced just by drinking water
SYMPTOMS	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
TREATMENT	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

FAINTING	
CAUSES	Fluid loss and inadequate water intake
SYMPTOMS	Sudden fainting after at least two hours of work; cool moist skin; weak pulse
TREATMENT	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.

HEAT EXHAUSTION	
CAUSES	Fluid loss and inadequate salt and water intake causes the body's cooling system to start to break down
SYMPTOMS	Heavy sweating; cool, moist skin; body temperature above 38°C; weak pulse; normal or low blood pressure; tired and weak, nausea and vomiting; very thirsty; panting or breathing rapidly; blurred vision
TREATMENT	GET MEDICAL AID This condition can lead to heat stroke, which can kill; move the person to a cool shaded area; loosen or remove excess clothing; provide cool water to drink; fan and spray with cool water

HEAT STROKE	
CAUSES	If a person's body has used up all its water and salt reserves, it will stop sweating, which can cause body temperature to rise; heat stroke may develop suddenly or may follow from heat exhaustion
SYMPTOMS	High body temperature (above 41°C) and any of the following: the person is weak, confused, upset, or acting strangely; has hot, dry, red skin; a fast pulse; headache or dizziness; in later stages, a person may pass out and have convulsions THIS IS AN IMMEDIATE MEDICAL EMERGENCY. PROMPT ACTION MAY SAVE THE PERSON'S LIFE.
TREATMENT	CALL AN 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

If you experience the early symptoms and warning signs of heat stress, respond by taking a break and drinking water (1 cup every 20-30 minutes). Notify your supervisor or co-worker of your symptoms.

Sometimes people don't notice their own heat stress symptoms. Their survival depends on their co-workers' ability to recognize symptoms and seek medical help. If you notice that a co-worker has any of the symptoms listed above, take him/her to a cool place and obtain first aid immediately.

