

Beat the Heat:

Controlling Heat Hazards in the Workplace

LEADER GUIDE



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Leader's Notes - Beat the Heat

During most seasons in Canada, it's hard to imagine heat stress being much of a danger. But with increasing summer temperatures, heat is becoming a greater hazard in pits, quarries and surface mines. And in certain mining plants and underground mines, controlling heat hazards is a challenge year 'round.

Note: these notes are intended to guide the trainer through a crew safety meeting on heat stress. Review the slides and notes ahead of time. Gather any procedures, statistics, incident or accident reports available from your operation. Referring to these will make the subject more relevant to the audience.

What is Heat Stress?

Total heat load on the body, including:

- Heat generated by the body
- Air temperature and humidity
- Radiant heat (sun, machines, warm rock surfaces)
- Clothing and PPE

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Heat stress is the broad term used to describe a range of health effects from mild symptoms to severe and life-threatening. Heat stress refers to the total heat load a person may be exposed to. This can be a combination of the heat generated by the person's body; the air temperature and humidity; the radiant heat from the sun or from machines, processes or rock; plus clothing and PPE. Heat stress can happen any time those conditions add up — whether at home or at work. Of course, working outside on a hot, humid summer day increases the risks.

How Serious is it?

Heat illnesses include:

- Heat rash
- Sunburn
- Heat cramps
- Fainting
- Heat exhaustion
- Heat stroke

Fatalities due to heat stress have occurred!

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Hot weather - big deal! Why are we even talking about this? If it's not controlled, excessive heat can cause discomfort, illness, and even death. In 2001, a bakery worker in Barrie died of heat stress during a heat wave. The outdoor temperature that day was 34 C, and the temperature inside the bakery was 46 C. Lack of water and not enough rest breaks were blamed. In 2002 in the United States, two mine rescue trainers died from heat stress in an abandoned, unventilated, underground gold mine while under oxygen. The temperature was greater than 39 C with very high humidity. Summer temperatures in Ontario are climbing, and in some underground mines, rock temperatures and humidity are high year 'round.

Heat Rash	
Cause	<ul style="list-style-type: none"> • Hot, humid environment • Plugged sweat glands
Symptoms	<ul style="list-style-type: none"> • Red, bumpy rash with severe itching
Treatment	<ul style="list-style-type: none"> • Leave the hot environment • Shower or rinse skin with cold water • Change into dry clothes
Sunburn	
Cause	<ul style="list-style-type: none"> • Over-exposure to sunshine • Effects the body's ability to sweat effectively
Symptoms	<ul style="list-style-type: none"> • Skin becomes red, painful, blistered, peeling
Treatment	<ul style="list-style-type: none"> • Leave the sunny environment • Get medical help for blisters • Apply lotion

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The symptoms of heat stress can range from mild (heat rash or sunburn) to severe (heat exhaustion and heat stroke). Review the charts in the next four slides and discuss the causes, symptoms and treatment for the various levels of heat stress.

Emphasize that it can be difficult for someone to recognize the signs of heat stress in himself or herself. It's important for workers to use a "buddy system", keeping an eye on each other to spot potential heat stress symptoms.

Heat Cramps	
Cause	<ul style="list-style-type: none"> Heavy sweating depletes body salt
Symptoms	<ul style="list-style-type: none"> Painful cramps in arms, legs, stomach May occur at work or later at home
Treatment	<ul style="list-style-type: none"> Move to cool area Loosen clothing Drink cool water Seek medical aid for severe cramps
Fainting	
Cause	<ul style="list-style-type: none"> Reduced flow of blood to the brain
Symptoms	<ul style="list-style-type: none"> Sudden fainting; weak pulse
Treatment	<ul style="list-style-type: none"> Remove from hot location Get medical aid; assess need for CPR Give cool water if conscious


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Review the causes, symptoms and treatment for heat cramps and fainting. Stress that some of the symptoms may not show up until later on when the worker is back home.

Heat Exhaustion	
Cause	<ul style="list-style-type: none"> Body cooling system begins to break down due to excessive heat Body's water and salt depleted
Symptoms	<ul style="list-style-type: none"> Heavy sweating; cool moist skin Body temperature above 38 C Weak pulse, normal or low blood pressure Feel tired, weak, clumsy, confused, thirsty Rapid breathing Blurred vision
Treatment	<ul style="list-style-type: none"> Summon medical aid Move to cool, shaded area Loosen or remove excess clothing Give cool water to drink Fan and spray with cool water


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Review the causes, symptoms and treatment for heat exhaustion.

Heat Stroke	
Cause	All body's available water and salt used up – sweating stops, causing body temperature to rise
Symptoms	<ul style="list-style-type: none"> High body temperature (may be more than 41 C) Feeling weak, confused, upset Acting strangely Hot, dry, red skin Fast pulse Headache or dizziness May faint May convulse
Treatment	<ul style="list-style-type: none"> Get medical aid immediately Remove from heat or sun Remove excess clothing Fan and spray with cool water If conscious give sips of water


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Review the causes, symptoms and treatment for heat stroke.

What you can do to protect yourself:

- Stay fit
- When possible, avoid working in hot areas and in full sun
- Take frequent breaks
- Use sun block with at least 15 SPF and re-apply every two hours
- Cover up with long-sleeve shirt, hat
- Increase fluid intake
- Avoid alcohol and excessive caffeine
- Reduce activity when exposed to heat
- Use buddy system to watch for symptoms
- Increase salt intake (if doctor approves)

There are things that workers can do to prevent heat stress. Like many other health issues, it starts with lifestyle. Being fit, eating properly, getting enough sleep and avoiding excessive alcohol or caffeine will all help your body cope better with heat. When possible, avoid working in hot environments, or schedule your heaviest tasks for cooler parts of the day. Take breaks in a cool area or in the shade. Cover up and use sun block when outside to prevent sunburn. And drink lots of water. Someone who weighs 150 pounds and works in a hot environment for four to five hours without drinking water, could lose three to four litres of fluid and begin experiencing heat cramps.

What employers can do to protect workers:

- Train workers in heat stress awareness and first aid
- Provide drinking water
- Provide rest breaks and air conditioned rest areas
- Encourage workers to stay fit, to drink water
- Indoors, provide fans for air movement
- Use machines to reduce physical demands of work
- Schedule most strenuous work to cooler times of the day
- Be aware of daily Humidex ratings



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The company can also take steps to help prevent heat stress. Talk to the crew about any policies and practices your company has in place, such as break times, availability of fresh water, and first aid training.

As you conclude, stress again that it doesn't have to be the hottest day of the summer for someone to feel the effects of heat stress. And it's not just an issue for work — they should watch for signs of heat stress in themselves, family and friends when working around the house and yard, fishing or spending a day at the beach.