



# IT'S YOUR HEALTH



## Extreme Heat Events

### The Issue

Many regions of Canada are experiencing more frequent, more severe and/or longer extreme heat events, sometimes called “heat waves”. It is important to take precautions to protect your health.

### Background

During extreme heat events (as announced by Environment Canada, or your local municipality/ Health Unit) the weather changes rapidly, leading to high temperature and/or humidity that your body may not be adjusted to. This is made worse if you are in the sun, or if there is little to no wind. During these extreme heat events there is typically a lack of night-time cooling and air quality is often poor.

Four environmental factors work together to make it hot enough to put health at risk.

- high air temperature
- high air moisture content (often expressed as relative humidity)
- radiant (sun) load
- lack of air movement (wind – which usually moderates the negative effects of the other factors)

Even at rest your body generates heat. In the summer time it is important to constantly release this heat from your body. For your body to function properly, its inner (core) temperature should be close to 37°C. This normally varies by a few degrees over the course of the day and during physical activity. As your work load and body heat increases, so does the need to lose that heat. A core temperature of 40 or 41°C is considered life-threatening if you don't have a fever. If you are sick with an infection you may have a fever, this is not necessarily life threatening as it is the body's way of fighting off the infection.

You maintain your core body temperature by giving off heat through a combination of:

- radiation (you send out infra-red rays to your surroundings)
- convection (you transfer heat directly from your skin to the air)
- evaporation (of sweat) – in high heat, this is particularly important.

Your heart must be effectively pumping blood to your extremities (head, hands and feet) in order for these three things to happen.

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## Health Risks of Extreme Heat Events

Heat strain can result in several heat related illnesses. Some of these are direct effects, and include:

- heat exhaustion
- syncope (fainting)
- cramps
- heat stroke

A heat stroke (or sun stroke) is a true medical emergency. Dial 911 immediately. During heat stroke the victim will have a body temperature that is above 40-41 °C, but they will have stopped sweating. They may also have:

- a throbbing headache
- dizziness
- confusion
- nausea
- red, hot and dry skin

The longer a person's body temperature is above 40°C, the greater the likelihood that he/she will suffer permanent effects, or death. While waiting for the ambulance, sponge him/her down with cool water.

Exposure to heat can also cause health problems indirectly, such as through the increased work load on the heart. In extreme heat, your heart has to pump harder to get blood to your extremities, even when you are at rest, and may be pushed over its limits.

If you have a pre-existing medical condition, you need to be particularly careful, as you may be more susceptible to the effects of an extreme heat event. For example, if your heart does not work at full capacity, if you use certain drugs, or

even if you are dehydrated, you may be at an increased risk.

## Minimizing Your Risk

During extreme heat, the most important thing is to keep cool and not expose yourself to heat stresses that will put a strain on your body.

You can keep cool in a number of ways, bearing in mind the four environmental factors of heat stress given in the Background section. At elevated temperatures, virtually all of your heat loss occurs through evaporation of perspiration (sweat) from your body. Anything that increases the rate of evaporation of sweat, such as personal cooling fans, is helpful.

You can also prepare your body for exposure to high heat by acclimatizing it. If you expose yourself to heat in a controlled way, for a few hours a day, then during the span of a week, your body can adjust. Of course, if you spend all of your time in an air-conditioned environment, your body will not adjust to heat.

To help protect yourself during an extreme heat event, take these steps:

- Keep out of the sun. If your house is cooler than outdoors, stay inside.
- If you must go outdoors into the sun, shade yourself with an umbrella or a wide-brimmed hat with lots of ventilation (to allow the sweat on your head to evaporate).
- Drink lots of water (that's the best liquid). How much water you should drink depends on how much you're sweating. It might just be a cup or two an hour, or it may be several litres. Thirstiness

is not a good gauge. It doesn't kick in until you've already lost enough water to contribute to heat strain.

- If it is sunny, keep your house cooler, by pulling down awnings or closing outdoor shutters (if you have them) over your windows, or keep the curtains/blinds closed.
  - If you have a two-storey house, keep the upper-level windows slightly open, to draw excess heat up and out.
  - If your house is hot, try to spend a few hours in an air-conditioned space, such as a mall, or a formal cooling centre. In any case, make sure to rest in cool shade periodically.
  - Take a cool bath or shower.
  - At night, if the outdoor temperature is cooler, open all your windows. If you have fan units that fit into the windows, use them to bring down the temperature faster.
  - Use fans to evaporate sweat from your body and cool it. If the temperature and humidity are both very high, this may not be effective or may have the opposite effect.
  - Limit your physical activity, especially if you are in an at-risk group, and certainly during the middle of the day, when the heat is greatest.
  - Liquids that are high in sugar and/or alcohol should be avoided, as they can increase the amount of water lost by the body.
  - Most people's diets contain enough salt to make up for losses in sweat. But if you experience heat cramps, are advised by your doctor, or have to work in the heat and are sweating a lot you may want to take in extra salt.
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- If you take medication, check with your doctor or pharmacist for possible side effects during extreme heat.
- Offer to help and check up on your neighbours, especially those who may be on their own and who may not be in a position to take these precautions.
- Heat should not be your only concern. If you are going outdoors in the daytime, apply sunscreen (to limit ultra-violet ray exposures). If you are going out at dawn or dusk (when mosquitos are most active) remember to apply insect repellent.

## Government of Canada's Role

Health Canada and the Public Health Agency of Canada are committed to maintaining and improving the health of Canadians. We are working with our partners to better understand the impacts of extreme heat on the health of Canadians, particularly those at greatest risk, and to promote efforts to reduce these risks. We provide information to Canadians on steps they can take to maintain and improve their health, including information on how they can prepare themselves to adapt to prolonged periods of extreme heat.

## Need More Info?

For more information, visit the following Government of Canada Web sites:

Health Canada, Climate Change and Health Web section at:

[www.hc-sc.gc.ca/ewh-semt/climat/index-eng.php](http://www.hc-sc.gc.ca/ewh-semt/climat/index-eng.php)

Or e-mail us at: [climatinfo@hc-sc.gc.ca](mailto:climatinfo@hc-sc.gc.ca)

For weather conditions in your area go to:

[www.weatheroffice.gc.ca/canada\\_e.html](http://www.weatheroffice.gc.ca/canada_e.html)

For more information on summer health and safety issues go to:

Health Canada, Healthy Living, Safe Summer Fun at:

[www.hc-sc.gc.ca/hl-vs/securit/season-saison/summer-ete/index-eng.php](http://www.hc-sc.gc.ca/hl-vs/securit/season-saison/summer-ete/index-eng.php)

Health Canada, It's Your Health, Summer Information section at:

[www.hc-sc.gc.ca/hl-vs/iyh-vsv/alpha-eng.php#s](http://www.hc-sc.gc.ca/hl-vs/iyh-vsv/alpha-eng.php#s)

For additional articles on health and safety issues go to the It's Your Health Web section at:

[www.healthcanada.gc.ca/iyh](http://www.healthcanada.gc.ca/iyh)

You can also call us toll free at

1-866-225-0709

or TTY at 1-800-267-1245\*