BRITISH COLUMBIA | HealthLinkBC

Number 35
December 2017

Heat-related Illness

What is heat-related illness?

Too much heat can be harmful to your health. Heat-related illness is the result of your body gaining heat faster than it can cool itself down. Heat-related illnesses can almost always be prevented.

Heat-related illness can lead to weakness, disorientation, and exhaustion. In severe cases, it can lead to heat stroke, also known as sunstroke. Heat stroke is a life-threatening medical emergency. The effects of heat are made worse if you do not drink enough fluids to stay hydrated.

What causes heat-related illness?

A healthy human body maintains a temperature of about 37°C (98.6°F). When your body temperature rises, heat is released through increased blood flow to the skin and increased sweating. This allows your body to cool and return to its normal temperature.

Being in a hot environment can make your body temperature go up. Examples of hot environments include the inside of a car or a tent on a hot day, the upper floors of a house on a sunny day, a hot tub or sauna, and heat from direct warmth or sunlight in the outdoors.

Heat-related illness occurs when your body is unable to properly cool itself. This occurs when you are overexposed to heat (indoors or outdoors), or during intense physical activity while it is hot.

Heat-related illnesses can also occur in your workplace if a hot environment is created by equipment or enclosed spaces. Examples include: bakeries, kitchens, laundries, boiler rooms, foundries and smelting operations, mines, and certain manufacturing plants.

What are the symptoms of heat-related illness?

The symptoms of heat-related illness can range from mild to severe. They include:

- Pale, cool, moist skin
- Heavy sweating
- Muscle cramps
- Rash
- Swelling, especially hands and feet
- Fatigue and weakness
- Dizziness and/or fainting
- Headache
- Nausea and/or vomiting
- Fever, particularly a core body temperature of 40°C (104°F) or more
- Confusion and decreased mental alertness
- Hallucinations
- Red, hot, dry skin (in the late stages of heat stroke)
- Seizures
- Unconsciousness/coma

Who is at higher risk of heat-related illness?

Those at increased risk for heat-related illness include:

- Infants and children up to 4 years of age who rely on adults to make sure their environments are comfortable and provide them with enough fluids.
- People 65 years of age or older who may not compensate for heat stress efficiently and are less likely to sense and respond to high temperatures.

- People who have heart problems and breathing difficulties.
- People who do intensive physical activity or work in a hot environment.

Other things that may increase your risk of heat-related illness include:

- Increased body mass
- Drinking too much alcohol or caffeine
- Chronic illnesses such as uncontrolled diabetes or hypertension, heart failure, emphysema, kidney failure, colitis, mental health issues, and cystic fibrosis
- Certain medications such as diuretics or water pills, and certain psychiatric medications
- Previous heat stroke
- High humidity
- Being unable to find a place to cool down
- Not drinking enough water during hot weather

How can I prevent heat-related illness?

There are many ways to reduce the risk of having a heat-related illness. These include:

- Never leave children alone in a parked car. Temperatures can rise to 52°C (125°F) within 20 minutes inside a vehicle when the outside temperature is 34°C (93°F). Leaving the car windows slightly open will not keep the inside of the vehicle at a safe temperature.
- Drink plenty of fluids. Drink extra water even before you feel thirsty and if you are active on a hot day. Ask your health care provider about how much water you should drink on hot days if you are on water pills or limiting your fluid intake.
- Keep cool. Stay indoors in air-conditioned buildings or take a cool bath or shower. At temperatures above 30°C (86°F), fans alone may not be able to prevent heat-related illness. Remember, sunscreen will protect against the sun's ultraviolet (UV) rays but not from the heat.
- Plan your outdoor activity before 10 a.m. or after 4 p.m., when the sun's Ultraviolet (UV) radiation is the weakest.
- Avoid tiring work or exercise in hot, humid environments. If you must work or exercise, drink 2 to 4 glasses of non-alcoholic fluids each hour. Rest breaks are important and should be taken in the shade.
- Avoid sunburn. Use a broad spectrum sunscreen with SPF 30 or higher on exposed skin and an SPF 30 lip balm.
- Wear lightweight, light-coloured, loose-fitting clothing and a wide brimmed hat, or use an umbrella for shade.
- Regularly check older adults, children and others for signs of heat-related illness and make sure they are keeping cool and drinking plenty of fluids. Check on those who are unable to leave their homes, and people with emotional or mental health concerns whose judgment may be impaired.

What are home treatments for mild heat-related illness?

When recognized early most mild heat-related illnesses, sometimes called heat exhaustion, can be treated at home. Note that mild heat exhaustion does not cause changes in mental alertness. Consult a health care provider about changes in mental alertness in someone who has been in, exercising or working in the heat.

Home treatment for mild heat exhaustion may include:

- Moving to a cooler environment
- Drinking plenty of cool, non-alcoholic fluids
- Resting
- Taking a cool shower or bath

If your symptoms are not mild, last longer than 1 hour, change, worsen, or cause you concern, contact a health care provider.

BC Centre for Disease Control
An agency of the Provincial Health Services Authority

Heat Cramps

Heat cramps occur in muscles during or after exercise because sweating causes the body to lose water, salt, and other minerals (electrolytes). Leg muscles, such as the calf or thigh muscles, are usually affected most, but abdominal muscle cramps can also occur.

Signs of heat cramps include:

- Muscle twitching or spasms.
- Muscles that feel hard and lumpy.
- Tender muscles.
- Nausea and vomiting.
- Weakness and fatigue.

Heat cramps may start during the activity or up to several hours after exercise that caused heavy sweating, and they may last for several minutes. The skin is moist and cool, and the muscles are tender. Muscle twitching may occur. Fatigue, nausea, and vomiting are also common with heat cramps.

Drinking plenty of water before, during, and after activity can prevent heat cramps. This is very important when it's hot out and during intense exercise. Sports drinks are absorbed as quickly as water but also replace sugar, sodium, and other nutrients. People who are hydrated and acclimate to hot environments are less likely to experience heat cramps.

Salt tablets **should not be used**. They are absorbed slowly and can cause irritation of the stomach. Salt tablets do not replace water loss.

Current as of: March 20, 2017

Author: Healthwise Staff
Medical Review: William H. Blahd, Jr., MD, FACEP - Emergency Medicine & Adam Husney, MD - Family Medicine & Kathleen Romito, MD - Family Medicine & H. Michael O'Connor, MD, MMEd, FRCPC - Emergency Medicine

healthwise
for every health decision

This information does not replace the advice of a doctor. Healthwise, Incorporated, disclaims any warranty or liability for your use of this information. Your use of this information means that you agree to the Terms of Use. Learn how we develop our content.

To learn more about Healthwise, visit Healthwise.org.

© 1995-2017 Healthwise, Incorporated. Healthwise, Healthwise for every health decision, and the Healthwise logo are trademarks of Healthwise, Incorporated.

Heat Syncope (Fainting)

Heat syncope occurs when a person faints suddenly and loses consciousness because of low blood pressure. Heat causes the blood vessels to expand (dilate), so body fluid moves into the legs by gravity, which causes low blood pressure and may result in fainting.

Symptoms that could lead to heat syncope (fainting) include:

- Feeling faint or light-headed.
- Pale, cool, and moist skin.
- Light-headedness when changing position, such as moving from a lying position to a standing position (orthostatic hypotension).

Heat syncope can be caused by blood pooling in the legs if a person has been standing still for a long time in a hot environment. It can also be caused by vigorous physical activity for 2 or more hours before the fainting happens.

A person's risk of developing heat syncope increases when the person has not adjusted (acclimated) to a hot environment. Being dehydrated may also increase the risk for heat syncope. Recovery is rapid after the person lies down in a cool environment.

Heat syncope is sometimes a symptom of a nervous system, metabolic, or cardiovascular problem that needs further medical evaluation.

Current as of: March 20, 2017
Author: Healthwise Staff

Heat Exhaustion

Heat exhaustion occurs when you can't sweat enough to cool your body. It can develop when you work or exercise in hot weather and don't drink enough liquids to replace the fluids you lose from sweating a lot. Heat exhaustion can be caused by loss of fluid (dehydration) or loss of electrolytes.

Symptoms of heat exhaustion include fatigue, weakness, headache, dizziness, and nausea. Also, the skin is pale, cool, and moist.

Mild heat exhaustion may sometimes cause fainting. But it doesn't cause a change in your mental alertness and usually can be treated at home.

Moderate to severe heat exhaustion can sometimes lead to heatstroke, which requires emergency treatment.

Current as of: March 20, 2017
Author: Healthwise Staff

Heatstroke

Heatstroke occurs when the body fails to regulate its own temperature, and body temperature continues to rise.

Symptoms of heatstroke include:

- Unconsciousness for longer than a few seconds.
- Confusion, severe restlessness, or anxiety.
- Convulsion (seizure).
- Symptoms of moderate to severe difficulty breathing.
- Fast heart rate.
- Sweating that may be heavy or may have stopped.
- Skin that may be red, hot, and dry, even in the armpits.
- Nausea and vomiting.

Classic heatstroke can develop without exertion when a person is exposed to a hot environment and the body is unable to cool itself effectively. In this type of heatstroke, the body's ability to sweat and transfer the heat to the environment is reduced. A person with heatstroke may stop sweating. Classic heatstroke may develop over several days. Babies, older adults, and people with chronic health problems have the greatest risk of this type of heatstroke.

Exertional heatstroke may develop when a person is working or exercising in a hot environment. A person with heatstroke from exertion may sweat profusely, but the body still produces more heat than it can lose. This causes the body's temperature to rise to high levels.

Both types of heatstroke cause severe dehydration and can cause body organs to stop functioning. **Heatstroke is a life-threatening medical emergency**, requiring emergency medical treatment.

Current as of: March 20, 2017

Author: Healthwise Staff

Heat Edema (Swelling)

It is not uncommon for the feet or hands to become swollen when a person sits or stands for a long time in a hot environment. This swelling is called heat edema.

Heat causes the blood vessels to expand (dilate), so body fluid moves into the hands or legs by gravity.

The balance of salt in the body is also a risk factor for heat edema. If salt loss is less than normal, the increased salt level draws fluid into the hands and legs.

Older adults have an increased risk of heat edema, especially if they have other medical conditions that affect their circulation.

People visiting hot climates from colder climates may also have an increased risk of heat edema.

Current as of: March 20, 2017

Dehydration

Severe dehydration means:

- Your mouth and eyes may be extremely dry.
- You may pass little or no urine for 12 or more hours.
- You may not feel alert or be able to think clearly.
- You may be too weak or dizzy to stand.
- You may pass out.

Severe dehydration is a medical emergency and requires emergency treatment. **Call 911 or other emergency services immediately**.

Moderate dehydration means:

- You may be a lot more thirsty than usual.
- Your mouth and eyes may be drier than usual.
- You may pass little or no urine for 8 or more hours.
- You may feel dizzy when you stand or sit up.

Mild dehydration means:

- You may be more thirsty than usual.
- You may pass less urine than usual.

Mild to moderate dehydration is treated at home by drinking more fluids. Treatment for moderate to severe dehydration may include IV fluids and a stay in the hospital.

Dehydration is very dangerous for babies, small children, and older adults. It is most dangerous for newborns. Watch closely for early symptoms anytime there is an illness that causes a high fever, vomiting, or diarrhea.

Current as of: March 20, 2017
Author: Healthwise Staff

10 Tips to Help You Avoid Dehydration

Mar 19, 2015 | Independent Living

Is “drink more water” your mantra? If not, maybe it should be: Studies show that while people can attribute 75 percent of their body weight to water, they need to keep replacing the fluids they lose just through normal activity to avoid dehydration.

According to the Mayo Clinic, there are many reasons why seniors are more susceptible to dehydration. “Your body’s ability to conserve water is reduced, your thirst sense becomes less acute, and you’re less able to respond to changes in temperature,” the clinic states.

How Prevalent Is Dehydration in Seniors?

According to recent research, up to 25 percent of seniors living independently don’t drink enough. The research also shows that dementia and continence issues are linked with dehydration. One of the reasons seniors dehydrate faster than younger people is that their bodies have a lower total water content. To combat dehydration, here are 10 tips for incorporating more liquids into your daily life.

10 Tips to Stay Hydrated

1. Avoid soda, coffee, tea, and alcohol. Your body needs fluids, but not all fluids are equally beneficial. Caffeinated beverages such as coffee, tea, and some sodas have a dehydrating effect. The same is true for alcohol.

2. Keep a water bottle handy at all times. Because seniors can have a diminished capacity to recognize thirst, and some seniors might have difficulty moving around, keeping a full water bottle with you will remind you to drink up each time you look at it.

3. Drink a full glass of water with any non-mealtime medication. If you take non-mealtime medication three times a day, this will automatically get you three glasses of water.

4. Replace water lost through environmental factors and exercise. Since water is lost through perspiration, keep a water bottle with you when you exercise and when you’re outside in warm weather.

5. If you hate the taste of water, add a little natural flavor. There’s no need to pay for fancy water. Add a squeeze of fresh lemon, lime, or orange to flavor your own water. For more variety, try putting some sliced melon or cucumber into a pitcher of water.

6. Eat foods with high water content. Fresh fruits and veggies, along with broth, gelatin snacks, ice pops, and Italian ices contain lots of water — and they can help hydrate you.

7. Drink throughout the day. Consistent hydration is better than flooding your system with a large quantity of water all at once.

8. If you start to feel sick, start sipping water immediately. Vomiting and diarrhea can dehydrate you. If you can’t tolerate water, suck on crushed ice or an ice pop.

9. Use a straw or squeeze bottle. Either method can help when you’re not up to sitting up and drinking directly from a glass.

10. Set an alarm or write yourself sticky notes. Independent seniors need to remind themselves about hydration, and setting alarms at intervals throughout the day can help. You can also leave sticky notes around your home to remind you to drink more water.

https://www.lifeline.philips.com/.../blog/.../10-tips-to-help-you-avoid-dehydration.htm.

Vancouver CoastalHealth

Heat Stress: Universal Precautions

Everyone is at risk for heat stress
Everyone has a role in prevention

Daily Intake

- 1500 ml around the clock
- Water is best but any fluids will do
- Offer another sip before you leave room
- Check with staff if unsure re swallowing ability

Respect the Sun

- Wear a hat
- Slap on the sunscreen
- Find some shade
- Go outside in morning or evening

Ice & Water

- Suck it
- Sip it
- Mist it
- Drink it

Nurse - Observe & Report

- Difficulty breathing
- Fatigue / weakness
- Muscle cramps
- Dry mouth
- Nausea / vomiting
- Headache / Dizziness
- Fever
- Rash

Keep it Cool!

- Stay inside when hot outside
- Keep window coverings closed
- Use a fan to increase air flow
- Wear loose, lightweight cotton clothing

DRINK to prevent heat stress!

Vancouver CoastalHealth
Promoting wellness. Ensuring care.

Adapted from Windermere Care Centre

Vancouver CoastalHealth

PREVENTION

- Wear light-colored, loose-fitting clothing
- Wear a hat
- Schedule activities for early morning or late evening
- Move to a cooler part of your building
- Stay indoors with air conditioning, if possible, or fans
- Turn off lights and unnecessary equipment
- Visit a cool place
- Drink before becoming thirsty
- Drink cool, non-alcoholic, decaffeinated drinks
- Take a cool shower or sponge bath
- Check up on a neighbor who is older and/or alone
- Use sunscreen of SPF 15 or higher
- Avoid strenuous activity at the hottest part of the day

Keeping it Cool in the Heat

How:

- Sit in the shade
- Wear loose, lightweight cotton clothing
- Apply a cool compress to face & back of the neck
- Use fans to increase air flow
- Cool fluids and foods
- Limit activities outdoors

Cool Places to Visit

- Air conditioned areas of the facility
- Under trees, or in shaded areas of the patio in the morning or evening
- Close to fans

If you have concerns about your health or the health of your resident or loved one, please speak with your health care provider

The Heat is On!

Tips for

Staying

Cool and Safe

in

Extreme Heat Conditions

Vancouver CoastalHealth

Promoting wellness. Ensuring care.

Vancouver CoastalHealth

WHAT ARE HEAT-RELATED ILLNESSES?

PRICKLY HEAT

What is it?
Allergic reaction of the skin

Signs & Symptoms
Itching, prickly sensation
Red rash

Treatment
Cool and dry affected area
Wear loose, lightweight clothing
See your doctor for antiseptic, anti-itch cream

HEATCRAMPS

What is it?
Painful muscular spasms sometimes accompanied by nausea

Signs & Symptoms
Cramps and twitching in legs, abdomen & shoulder
Excessive sweating

Treatment
Rest in a cool location
Take fluids

HEAT EXHAUSTION

MAY BE A MEDICAL EMERGENCY

What is it?
Inability to sweat enough to cool off

Signs & Symptoms
Muscle cramps & nausea
Headache, dizziness, vomiting
Fatigue, weakness

Treatment
Rest in a cool location
Place ice packs under arms, on groin, back of neck
Give fluids gradually

HEAT STROKE

A MEDICAL EMERGENCY

What is it?
Body does not sweat; temperature rises

Signs & Symptoms
Confusion, weakness,
Loss of consciousness
Dry, hot skin
Body temperature as high as 40.6C

Treatment
Transfer to a cool, shady area
Remove/loosen clothing

WHO IS AT RISK?

Infants & children younger than 5
Adults 65 years and older
People with chronic diseases, especially CHF
People who exercise or do strenuous work outdoors

WARNING SIGNS

Excess sweating or absence of sweating
Headache & nausea
Changes in mental status
Feeling light-headed
Changes in pulse rate
Labored breathing

EDUCATE YOURSELF ON THE SIGNS AND SYMPTOMS OF HEAT-RELATED ILLNESSES AND DEHYDRATION

Vancouver CoastalHealth
Promoting wellness. Ensuring care.