aboutkidshealth

Managing the Summer Heat eBook

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Managing the Summer Heat

How the body controls temperature

To work properly, our bodies need to maintain a core temperature of about 37°C at all times. Body temperature is tightly controlled by a "thermostat" in a part of the brain called the hypothalamus. When the body's core temperature rises above its "set point," the hypothalamus turns on various heat loss mechanisms, including faster, shallower breathing; increased blood flow to the skin; and sweating.

In humans, most excess heat is shed through the skin. Blood brings heat from the core body tissues to the skin. Heat then passes from the skin to the environment through:

- conduction: heat passes from the skin to a cooler object
- convection: cooler air currents remove heat from the skin
- radiation: the skin emits small amounts of radiant energy
- evaporation: body heat is used to turn sweat into water vapour
- If the surrounding air is cool and dry, it is easy for the body to get rid of heat. The hotter and more humid it gets, though, the more difficult it becomes to get rid of heat.
- If the air is as hot as or hotter than the skin, about 36°C, the body will absorb heat from its surroundings. The only cooling mechanism that still works is evaporation.
- If a person stands in direct sunlight, especially if wearing dark clothing, the body will absorb heat from the sun.
- If the air is also very humid, evaporation no longer works well. As a result, we sweat heavily, but do not lose much heat.

In other words, high temperatures, high humidity, and direct sunlight all make the body work harder to get rid of excess heat.

Risk factors for heat-related illness

Heat-related illness includes heat cramps, heat exhaustion, and heat stroke. Anyone whose body has trouble with temperature regulation or who cannot escape the heat is at risk when the temperature rises. These include:

- babies and young children, who do not regulate temperature as well as older children and adults: the surface area of their bodies is high relative to their body mass so they absorb more heat from the environment, they produce more heat when exercising, they sweat less than adults, and they may forget or not know to drink plenty of fluids
- children with mental retardation, who may not recognize the need to replace fluid loss
- children who cannot move or change position by themselves
- children with chronic illnesses such as diabetes, cystic fibrosis, or heart conditions
- children with acute illnesses, including fever, gastrointestinal infection, or sunburn
- children who exercise heavily, especially if they are not used to the heat, not very fit, or obese
- children who are taking certain drugs that reduce the body's ability to regulate its temperature, such as antihistamines, diuretics, or drugs for mental health conditions; check with your doctor or pharmacist if you or your child take medication regularly
- any child who has had heat-related illness in the past

Tips for staying cool and preventing heat-related illness

Heat-related illness can be avoided by taking the right precautions.

In Canada, temperature and humidity readings are often combined into a humidex reading, a rough description of how hot it actually feels. While the humidex is not a perfect tool, you can use the humidex forecast for the day to plan ahead.

Humidex readings and comfort levels (Environment Canada)

Less than 29°C (84°F)	No discomfort
30°C to 39°C (86°F to 102°F)	Some discomfort
40°C to 45°C (104°F to 113°F)	Great discomfort; avoid exertion
Above 45°C (113°F)	Dangerous
Above 54°C (129°F)	Heat stroke imminent

To stay cool:

- Limit outdoor activities.
- Stay out of direct sunlight and crowded areas.
- Rest often in shady areas, or go to an air-conditioned space.
- Drink non-alcoholic, non-diuretic fluids. Water is a good option, but children may drink more of a flavoured beverage such as juice or a sports drink.
- Avoid very cold drinks.

- Cool the body with water.
- Wear wide-brimmed hats and lightweight, light-coloured, loose-fitting clothing.
- Be aware that fans only move the air around; they do not cool it. Fans work best in front of an open window.
- Never leave children or pets alone in a car, even for a few minutes.

Sports and exercise in the heat

Sports are an important part of summer for many children and teens. However, it's important to avoid heat-related illness. Children who exercise in the heat are at higher risk than adults, because they produce more heat, sweat less, and may forget to drink enough.

If your child is going to be exercising or playing sports:

- Make sure the coach or supervisor is knowledgeable about exercising in the heat and that there is a plan for dealing with heat-related illnesses if they arise.
- Reduce the intensity of exercise when it is very hot, humid, or sunny.
- The sun's rays are at their strongest between 11:00 a.m. and 2:00 p.m. Keep physical activity to a minimum during this time.
- Take frequent breaks.
- Wear lightweight, light-coloured, loose-fitting clothing.
- Make sure children are well hydrated before exercising.
- Make sure children drink every 15 to 20 minutes when exercising, even if they don't feel thirsty. One way to tell whether your child is drinking enough is to weigh him before and after the activity, wearing very little clothing. If he weighs less after the activity than before, he is not drinking enough. However, if he weighs more after the activity, he is drinking too much.
- Don't use salt tablets to replace electrolytes, as they provide too much salt.
- If it is very hot and humid, cancel the activity or move to an air-conditioned space.

Sun Safety

The sun is essential for life on Earth. It's a major source of energy, Vitamin D, and has a profound impact on our mood and emotional well-being. But too much sun exposure can cause severe sunburns, including blisters, illness, shivering, and fever. In the long term, too much sun exposure can cause early aging of the skin and even skin cancer.

The outermost layer of the skin, the stratum corneum, protects us from ultraviolet (UV) radiation. But this layer does not become mature until age 2 or shortly after. Children's skin also contains less melanin, a natural pigment that helps protect against UV. More and more evidence suggests that skin damage from UV radiation may begin as early as the first summer of life.

For all these reasons, it is important to protect your child's skin from the sun. This can include applying sunscreens, wearing sun-protective clothing such as long sleeves and hats, and avoiding the sun completely.

The fairer your child's skin is, the greater chance he has of getting a sunburn.

On days that are cloudy or overcast, the sun's rays can still reach your child.

The sun's rays are at their strongest between 11:00 in the morning and 2:00 in the afternoon.

Babies under 6 months should avoid the sun, because sunscreens are not recommended in this age group. Keep them in the shade at all times.

Certain medications may cause skin to become more sensitive to sunlight. Talk to your doctor or pharmacist for more information.

Sunscreens

Sunscreen agents that your child can use on the skin do the following things:

- protect against the sun's harmful rays (UV rays)
- protect against sunburn
- help prevent sun-related skin changes such as wrinkles, pigment (skin colour) changes, and skin cancer

Choose a sunscreen that protects against both UVA and UVB, which are the damaging components of sunlight.

Sun protection factor (SPF) refers to the degree of protection from UVB rays. It does not include protection against UVA rays.

Chemicals that protect the skin against UVA include:

- oxybenzone
- avobenzone
- ecamsule

Sunscreens that contain substances such as titanium dioxide and zinc dioxide protect against both UVA and UVB.

Follow these steps when choosing and using sunscreen:

- Choose a sunscreen that has an SPF of 30 or higher.
- Apply sunscreen liberally and often to all parts of the body that are exposed to the sun, especially the face and neck.
- Apply and re-apply every 2 to 3 hours, especially when your child does outdoor activities.
- Use sunscreen even on days that are cloudy or overcast, because the sun's rays can still reach your child.

Tips for reducing sun exposure

- Avoid tanning beds. Studies have shown that using tanning beds increases your risk for skin damage and skin cancer significantly.
- Avoid going out in the sun between 11:00 in the morning and 2:00 in the afternoon. This is when UV radiation is the strongest.
- Participate in outdoor activities earlier or later in the day.
- Avoid sunbathing.
- Look for areas that are shaded or covered instead of sitting in the direct sun.
- Wear loose, long-sleeved cotton tops, and pants. This helps keep you covered and cool during the day. Cotton and linen are the best materials for staying cool.
- Wear a sunhat.
- Use sunglasses that protect against UVA and UVB radiation.

Sunburn

Sunburn is skin damage that occurs when your child's unprotected skin is exposed to the sun's harmful ultraviolet (UV) rays. Two types of UV waves, called UVA and UVB, are responsible for most of the damage to the skin. If your baby or young child is sunburned, the sunburn can damage the DNA of skin cells. Damaged skin cells can lead to moles or even skin cancer.

Any part of the body can burn – from the scalp, to ear tips, to arms, chest, and face. Only minutes of intense sun exposure can cause sunburn. But sunburns usually appear a few hours after your child has been exposed to the sun.

After a few days, the skin tries to repair itself by peeling away the top layer of damaged skin.

Most sunburns occur during daily playtime and not necessarily special trips to the beach.

Babies and younger children can get sunburned in 20 minutes (or less in high UV settings). Light-skinned or red-headed children are more at risk to sun damage.

Signs and symptoms of sunburn

The signs and symptoms of sunburn may include:

- painful skin that is hot to the touch
- redness or pinkness
- swelling skin
- small blisters that may break and leak fluid
- headache, fever, or fatigue if the burn covers a large area

Sunburn: What to do

If your child suffers a sunburn, there are simple steps to help your child's skin recovery. Follow these steps:

- Have your child stay in the shade until the sunburn is healed.
- If the sunburn is painful, gently apply a cold compress to the skin or have your child take a cool (not very cold) bath.
- Gently apply aloe vera gel to the skin. Hydrocortisone cream (1%) can also help reduce swelling.

Make an appointment with your child's doctor if blisters develop on the skin.

Water Safety

Children under five are more likely to drown or nearly drown than any other age group. Children aged five to nine are also at high risk for drowning. Here are some tips for keeping your children safe around water.

Never leave children unattended near water

Always supervise your child when he or she is in or near water. Children can drown in the time it takes to answer a phone.

Stay close enough to touch your child when in the bathtub, home swimming pool, public pool, or lake. Supervision is the best way to prevent drowning.

The most common situations for drowning are swimming, boating, and in the bathtub.

Backyard swimming pools

Parents should make sure there is a fence that surrounds the backyard swimming pool on all sides. The fence needs to be 1.2 metres (4 feet) high and have a self-latching gate. Check to make sure that your pool follows local by-laws for backyard swimming pools.

Some people have a fence on three sides and consider the house to be the fourth side. But in this case, you are protecting the other kids and not your own. Since a child can exit the house through sliding doors and directly enter the pool unsupervised, the pool should be completely fenced in. If any door in the house leads directly to the pool, make sure that door closes by itself and has a lock that a child cannot reach and open.

Keep these pool safety tips in mind:

- Always have an adult watching children in the pool. It is best that this adult knows cardiopulmonary resuscitation (CPR) and lifesaving techniques.

- Enroll children in swimming and water safety lessons by the time they are 4 years old. Water safety programs for adults and younger children are also a good idea.
- Taking swimming lessons does not ensure that a child will not drown. You still need to watch your child closely in and around water.
- Children can drown in seconds; do not turn away to answer the phone or focus on something else. Do not assume that a child in trouble will be able to make noise to alert you.
- Make sure lifesaving and first aid equipment is close to the pool. Keep emergency phone numbers nearby.
- Children under the age of 3 or children who cannot swim must wear personal flotation devices (PFDs). Be sure that the PFD is an approved device and that all parts of the PFD are in good condition. Users of inflatable PFDs should follow manufacturer's instructions so they can help their children use them correctly. Remember that air-filled toys, water wings, and air mattresses are not a substitute for a PFD.
- Always check the pool first if a child is missing.