

## **SURVIVING HOT WEATHER**

Our bodies are designed to function properly within a specific temperature range. Once outside this range, they can face problems. This article discusses the challenges presented by hot weather and how to cope with them.

The term 'hot' is relative: different people are uncomfortable at different temperatures. Atmospheric conditions such as humidity and wind speed affect an individual's perception of heat. Humid air prevents the evaporation of sweat and short-circuits the body's cooling mechanism; in contrast, a breeze assists the evaporation of sweat and helps cool the body. In addition, the body becomes adjusted to what it perceives as a 'normal' temperature and any deviation from this causes discomfort. For example, a temperature of 28°C (82°F) may feel uncomfortably warm to residents of Scandinavia and downright cool to those living in the Australian Outback. An abrupt rise of temperature from 10°C (50°F) in the morning to 35°C (95°F) in the afternoon can also feel unpleasantly hot. So it is important to listen to your body and adjust your behavior accordingly. 'Toughing it out' is foolish and can have serious consequences.

### **The Dangers Posed by Hot Weather**

The most important thing in dealing with hot weather is being familiar with the symptoms of overheating and knowing how to treat it. Overheating can result in discomfort and heat cramps, heat exhaustion, or, most severely, heat stroke - which can be fatal. Hot weather can also aggravate existing health problems such as heart disease and respiratory illnesses, and these illnesses can compromise the body's ability to deal with the heat. Hot weather is not just an inconvenience, and it needs to be approached sensibly.

Heat cramps are painful spasms in the muscles of the arms, legs, and abdomen. These spasms generally result from strenuous activity and may be accompanied by heavy sweating. They seldom require medical attention unless a person has heart disease or is on a low-sodium diet. In every case, a person suffering from heat cramps should stop and rest in a cool environment, drink fruit juice or a sports drink to replace lost fluids and minerals, and not resume strenuous activity for a few hours. They should seek medical attention if symptoms have not subsided after an hour.

Heat exhaustion is a serious condition and should be treated as soon as possible. The symptoms of heat exhaustion include:

- pallor
- cool, clammy skin
- extreme fatigue
- nausea
- dizziness
- light-headedness
- vomiting
- fainting

A person exhibiting the symptoms listed above should be taken to a cool environment, given plenty of juice or sports drinks, and treated with cool rags placed on various areas of the body. If the body temperature remains elevated even after treatment, it's time to contact a medical doctor for additional advice and treatment.

Heat stroke is an emergency. Anyone exhibiting the signs and symptoms of heat stroke needs immediate medical attention. Symptoms include:

- red, flushed skin
- a body temperature of 41°C (106°F) or higher
- seizures
- headache
- rapid pulse
- unconsciousness

While waiting for the ambulance, try to cool the victim. First, get them to a shady place or air-conditioned building. Next, give them a cool shower or bath, spray them with cool water, sponge them off, or wrap them in a wet sheet and fan them vigorously. Monitor their temperature until it drops to 38°C (100°F). Do not give them alcoholic drinks. Occasionally, a victim's muscles may twitch uncontrollably; if this happens, make sure he does not injure himself, but do not put anything in his mouth or give him anything to drink. If the person is vomiting, turn them on their side to keep the airways open.

## **General Hints**

Preventing heat-induced illness involves observing a few basic rules: dressing appropriately, keeping your body well-hydrated, finding shelter from the sun if possible, avoiding over-exertion, and knowing what to do in the event of trouble. This is true whether you find yourself in a large city or out in the wilderness. Still, each environment presents unique advantages and challenges which you need to keep in mind.

Coping with the heat in an urban area is relatively easy for most people. Developed countries that regularly experience hot weather have an infrastructure in place to deal with it. Many public and private buildings will be air-conditioned. Clean water and cold drinks will be readily available. The large cities will have 'cold shelters', or similar, which are air-conditioned public buildings that remain open around the clock, allowing people to get away from the heat. And medical care, should it become necessary, will be more or less readily-available.

However, prolonged heat waves and the resulting use of air-conditioning can tax the electrical grid, which may result in brownouts or blackouts<sup>1</sup>. The heat can also stress roads, buildings, machinery, and the like. Car engines can overheat and train tracks can warp or bend, for example. Additionally, heat waves can be accompanied by droughts, so the authorities may impose restrictions on water use. It's a good idea to know how to live without the conveniences of modern urban life and to prevent problems before they start.

Dealing with hot weather when you're away from civilization is the same as dealing with it elsewhere, except planning ahead and prevention become more critical. You lack a support system - there are no air-conditioned buildings, no easy access to water and no medical services should you fall ill. If you are with other people, use the buddy system and watch each other for symptoms of overheating. It also makes a difference whether you are out for a hike though the countryside, or lost, stranded, or injured in the wilderness. If you are in the wilderness, your most immediate needs are water and shelter; your main dangers are fear and panic, which will keep you from thinking clearly and behaving sensibly.

Listed below are some guidelines on how to stay healthy when the heat is on.

## **Clothing**

In town, wear as little as personal modesty and local ordinances permit. Loose clothing made of light-colored, natural fabrics such as cotton and linen is best. Clothing made of synthetic 'sports' fabrics that wick away perspiration is also good. Avoid polyester like the plague; it holds in heat and sweat, allowing you to stew in your own juices.

A caveat: many residents of hot, desert countries wear light layers of clothing that cover most of the body. In such climates, the sun is your enemy as much as the heat is, so it's better to cover up and sweat, rather than risk sunburn.

Speaking of sunburn, be sure to liberally apply sunscreen with SPF 15 or more on exposed parts of the body. Sunburn can limit your body's ability to cool itself and will cause additional loss of body fluids, pain, and damage to the skin. Another good choice is sun-protective clothing. The fabric prevents most of the sun's ultraviolet rays from penetrating to the skin, thus protecting it against sunburn. This is helpful for those who don't like to use creams or who are allergic to some component of sunscreens.

The benefits of wearing hats are open to debate. On the one hand, they protect your face and head from the sun. On the other, they can hold in the heat around your head, which may make you more uncomfortable. If you choose to wear a hat, make sure the crown is well-ventilated.

When you're at home, go barefoot. In town, wear sandals or ventilated shoes. Your feet will love you.

## **Food and Drink**

Be sure to drink lots of liquids, but avoid alcoholic, carbonated, and caffeinated beverages; you need to replenish the water you're losing to perspiration. Yes, sweating is unpleasant, but it's nature's way of cooling your body, and it need not cause the dreaded body odour. Do not judge your need for liquids by thirst - always drink more than you think you need.

If you're sweating a lot, you need to replace lost salts and minerals as well as water. Fruit juice or sports drinks are good choices, but do not take salt tablets unless directed to by your doctor. Taking calcium supplements, however, is a good idea.<sup>2</sup>

Put ice in your drinks if it's available; cold liquids help lower your body's temperature.

Eat lightly. Hot foods and high-calorie or high-protein meals raise your body's metabolism and its temperature. That's the last thing you need right now. Think fresh fruits and vegetables, cold salads, and the like.

## **Behavior**

Pace yourself. This is not the time to take up running. It may, in fact, be time to stop running for a while, unless you can do so at night when it cools off. If you want to exercise outdoors but aren't acclimatized to the temperature, start slowly and pick up the pace gradually. Pay close attention to how you feel. If your heart is pounding and you're short of breath, stop immediately, go into a cool environment and rest.

Avoid exertion during the hottest part of the day. Try to run errands in the early morning or late evening. There is a reason why hot countries like Spain have a custom called 'the siesta'.

In the city, sunlight and heat interact with the by-products of fossil fuel combustion, such as motor vehicle exhaust and industrial emissions, producing ozone. Unlike the stratospheric ozone that shields the planet from ultraviolet radiation, ozone in the lower atmosphere is bad news. Over time, breathing too much of it impairs the functioning of the lungs, which poses a danger to those with emphysema and asthma and makes breathing difficult even for healthy individuals. This is another reason to limit your outdoor activities on hot, sunny days; people with respiratory illnesses should remain indoors as much as possible.

Do not leave children or pets in parked cars, even for brief periods of time. The temperature inside the car can rise to 49°C (120°F) or more within minutes.

Stay cool indoors. If your home isn't air-conditioned or cooled with a water-evaporation system, try to go into a cool area, such as a shopping mall or air-conditioned library, during the hottest part of the day. If you live in a multi-storey building, spend time on the lowest level where it will be cooler. A fan can help move the air around your house and will be useful for pulling in relatively cool air at night, but do not rely on a fan to keep cool during the day. A fan will not prevent heat-related illnesses when the temperatures are over 37°C (98.6°F). A cool shower is a much more effective way to cool off.

Try not to use the stove or oven during a heat wave, and turn off unused lights and electrical appliances. These items raise the temperature indoors, and they use electricity that is better directed to the air conditioner.

In the country, it will be tempting to splash around in the first body of water you come to. Go ahead, but carefully. The water may be bad, there may be dangerous animals or stinging insects nearby, and you will increase your risk of sunburn.

A heat wave and drought increase the likelihood of wildfires. You don't want to be anywhere near a fire. Fire is unpredictable and you can't outrun it. If you are planning an outing in the country, check for news of fires near the area you'd like to visit. Also, check the weather forecast: electrical storms can start fires (you don't want to be outdoors when lightning occurs anyway). This is one case where an ounce of prevention is worth much more than a pound of cure.

## **Special Situations**

### ***People at Risk***

There are several groups of people who are at higher risk for heat-related illnesses. These include:

- the elderly
- infants and young children up to the age of four
- those who perform strenuous activities outdoors
- overweight people
- people with certain health problems, such as heart disease or respiratory illnesses
- the poor

If you fall into one of these categories, your body's heat-regulating abilities may be unable to meet the demands placed on them, or you may be taking medications that interfere with heat regulation. In addition, the poor and the elderly often live alone or in substandard housing and may not be able to get away from the heat. If you or a loved one fall into this category, be especially careful to avoid overheating and to drink plenty of fluids. Check frequently on children and elderly relatives or neighbors. If something seems 'not right', trust your instincts and get help. It's much better to err on the side of caution.

## **Medications and Heat**

Talk to your doctor about any prescription or over-the-counter medications you are taking and how they may interfere with your body's ability to regulate its temperature. Also mention any herbal remedies you are using, as these can interact with medications and exacerbate their effects. Types of medications known to affect temperature regulation include (but are not limited to):

- gastrointestinal drugs containing atropine (eg, Donnatal)
- antidepressants or antipsychotics (eg, Thorazine, Haldol, Prozac)
- antihistamines (eg, Benadryl)
- certain cardiovascular drugs including beta blockers (eg, Blocadren) and diuretics (eg, Diuril)
- Parkinson's disease medications

If you and your doctor decide that you need to take one of these medications, be especially careful to avoid over-exertion and to drink plenty of fluids during hot weather.

## **Pets and Other Animals**

Your companion animals are enduring the hot weather, too, and many of them are wearing fur coats. Be sure they have plenty of clean, fresh water available and a cool or shady place they can go to during the heat of the day. Wild animals are also suffering. A dish of water placed somewhere accessible will help them survive the heat and may save their lives.

## **Helpful and Light-hearted Hints**

Employers: consider relaxing the dress code during a heat wave. Better to have productive employees wearing shorts than to have well-dressed employees leaving at noon because they are ill.

If you don't have air-conditioning at home, open all the windows around 5am and air out the house. When the temperature begins to rise, close the windows and pull down the shades and draw the curtains. This will keep your house as cool as possible during the day.

Make your own 'air-conditioning': soak a hand towel in water, wring it out, and put it in the refrigerator or freezer until it's good and cold. Then wrap the towel around your neck. You can also put cold water or cold cloths on your pulse points, such as the inside of your wrists and the backs of your knees.

Do not greet friends and co-workers with a jolly 'Hot enough for you?' Of course it's hot enough for them, and they've already heard it a dozen times. This thirteenth time may push them right over the edge.

If you're one of those people who thrive in the heat, don't lord it over the rest of the populace. It's unkind, and they'll return the 'favor' when the weather is cold and you're the one who is suffering.

You may want to consider sleeping alone - shove that hairy body next to you right out of the bed. The cat will probably be cooler without a hot human next to it as well.

Make sun tea. Fill a pitcher with water - no need to heat it first - and add tea or tea bags to taste. Sit the pitcher in the sun. In a few hours you will have the clearest, loveliest tea you can imagine. Put the pitcher in the fridge to chill the tea, or add ice. Or do as they do in Morocco - where they know about hot weather - and add mint.

Be gentle with yourself. You're miserable, you're probably not sleeping well, and your head hurts. Don't beat up on yourself because you're not at your best. Give yourself a treat, even if it's only ice cream for breakfast.

Remember: this too shall pass.