

Dehydration and Heat Stroke

By University of Maryland Medical Center

The danger of dehydration and heat stroke:

Dehydration and heat stroke are two very common heat-related diseases that can be life-threatening if left untreated.

What is dehydration?

Dehydration can be a serious heat-related disease, as well as being a dangerous side-effect of diarrhea, vomiting and fever. Children and persons over the age of 60 are particularly susceptible to dehydration.

What causes dehydration?

Under normal conditions, we all lose body water daily through sweat, tears, urine and stool. In a healthy person, this water is replaced by drinking fluids and eating foods that contain water. When a person becomes so sick with fever, diarrhea, or vomiting or if an individual is overexposed to the sun, dehydration occurs. This is caused when the body loses water content and essential body salts such as sodium, potassium, calcium bicarbonate and phosphate.

Occasionally, dehydration can be caused by drugs, such as diuretics, which deplete body fluids and electrolytes. Whatever the cause, dehydration should be treated as soon as possible.

What are the symptoms of dehydration?

The following are the most common symptoms of dehydration, although each individual may experience symptoms differently. Symptoms may include:

- thirst
- less-frequent urination
- dry skin
- fatigue
- light-headedness
- dizziness
- confusion
- dry mouth and mucous membranes
- increased heart rate and breathing

In children, additional symptoms may include:

- dry mouth and tongue
- no tears when crying
- no wet diapers for more than 3 hours
- sunken abdomen, eyes or cheeks
- high fever
- listlessness
- irritability
- skin that does not flatten when pinched and released

Treatment for dehydration:

If caught early, dehydration can often be treated at home under a physician's guidance. In children, directions for giving food and fluids will differ according to the cause of the dehydration, so it is important to consult your pediatrician.

In cases of mild dehydration, simple rehydration is recommended by drinking fluids. Many sports drinks on the market effectively restore body fluids, electrolytes, and salt balance.

For moderate dehydration, intravenous fluids may be required, although if caught early enough, simple rehydration may be effective. Cases of serious dehydration should be treated as a medical emergency, and hospitalization, along with intravenous fluids, is necessary. Immediate action should be taken.

How can dehydration be prevented?

Take precautionary measures to avoid the harmful effects of dehydration, including:

- Drink plenty of fluids, especially when working or playing in the sun.
- Make sure you are taking in more fluid than you are losing.
- Try to schedule physical outdoor activities for the cooler parts of the day.
- Drink appropriate sports drinks to help maintain electrolyte balance.
- For infants and young children, solutions like Pedialyte will help maintain electrolyte balance during illness or heat exposure. Do not try to make fluid and salt solutions at home for children.

What is heat stroke?

Heat stroke is the most severe form of heat illness and is a life-threatening emergency. It is the result of long, extreme exposure to the sun, in which a person does not sweat enough to lower body temperature. The elderly, infants, persons who work outdoors and those on certain types of medications are most susceptible to heat stroke. It is a condition that develops rapidly and requires immediate medical treatment.

What causes heat stroke?

Our bodies produce a tremendous amount of internal heat and we normally cool ourselves by sweating and radiating heat through the skin. However, in certain circumstances, such as extreme heat, high humidity or vigorous activity in the hot sun, this cooling system may begin to fail, allowing heat to build up to dangerous levels.

If a person becomes dehydrated and can not sweat enough to cool their body, their internal temperature may rise to dangerously high levels, causing heat stroke.

What are the symptoms of heat stroke?

The following are the most common symptoms of heat stroke, although each individual may experience symptoms differently. Symptoms may include:

- headache
- dizziness
- disorientation, agitation or confusion
- sluggishness or fatigue
- seizure
- hot, dry skin that is flushed but not sweaty
- a high body temperature
- loss of consciousness
- rapid heart beat
- hallucinations

How is heat stroke treated?

It is important for the person to be treated immediately as heat stroke can cause permanent damage or death. There are some immediate first aid measures you can take while waiting for help to arrive.

- Get the person indoors.
- Remove clothing and gently apply cool water to the skin followed by fanning to stimulate sweating.
- Apply ice packs to the groin and armpits.
- Have the person lie down in a cool area with their feet slightly elevated

Intravenous fluids are often necessary to compensate for fluid or electrolyte loss. Bed rest is generally advised and body temperature may fluctuate abnormally for weeks after heat stroke.

How can heat stroke be prevented?

There are precautions that can help protect you against the adverse effects of heat stroke. These include:

- Drink plenty of fluids during outdoor activities, especially on hot days. Water and sports drinks are the drinks of choice; avoid tea, coffee, soda and alcohol as these can lead to dehydration.
- Wear lightweight, tightly woven, loose-fitting clothing in light colors.
- Schedule vigorous activity and sports for cooler times of the day.
- Protect yourself from the sun by wearing a hat, sunglasses and using an umbrella.
- Increase time spent outdoors gradually to get your body used to the heat.
- During outdoor activities, take frequent drink breaks and mist yourself with a spray bottle to avoid becoming overheated.
- Try to spend as much time indoors as possible on very hot and humid days.

If you live in a hot climate and have a chronic condition, talk to your physician about extra precautions you can take to protect yourself against heat stroke.