**Heat Stroke**

Heat stroke is the most serious form of heat injury, and is a medical emergency. Heat stroke can kill or cause damage to the [brain](http://www.webmd.com/brain/picture-of-the-brain) and other internal organs. Although heat stroke mainly affects people over age 50, it also takes a toll on healthy young athletes.

Heat stroke often occurs as a progression from milder heat-related illnesses such as heat cramps, heat syncope (fainting), and [heat exhaustion](http://firstaid.webmd.com/understanding-heat-related-illness-basics). But it can strike even if you have no previous signs of heat injury.



Heat stroke results from prolonged exposure to high temperatures -- usually in combination with [dehydration](http://www.webmd.com/a-to-z-guides/dehydration-adults) -- which leads to failure of the body's temperature control system. The medical definition of heat stroke is a core body temperature greater than 105 degrees Fahrenheit, with complications involving the central nervous system that occur after exposure to high temperatures. Other common symptoms include [nausea](http://www.webmd.com/digestive-disorders/digestive-diseases-nausea-vomiting), seizures, confusion, disorientation, and sometimes loss of consciousness or [coma](http://www.webmd.com/brain/coma-types-causes-treatments-prognosis).

**Symptoms of Heat Stroke**

The hallmark symptom of heat stroke is a core body temperature above 105 degrees Fahrenheit. But fainting may be the first sign.

Other symptoms may include:

* Throbbing headache
* Dizziness and light-headedness
* Lack of sweating despite the heat
* Red, hot, and dry skin
* Muscle weakness or cramps
* Nausea and vomiting
* Rapid heartbeat, which may be either strong or weak
* Rapid, shallow breathing
* Behavioral changes such as confusion, disorientation, or staggering
* Seizures
* Unconsciousness

**First Aid for Heat Stroke**

While waiting for the paramedics to arrive, initiate first aid. Move the person to an air-conditioned environment -- or at least a cool, shady area -- and remove any unnecessary clothing.

If possible, take the person's core body temperature and initiate first aid to cool it to 101 to 102 degrees Fahrenheit. If no thermometers are available, don't hesitate to initiate first aid.

You may also try these cooling strategies:

* Fan air over the patient while wetting his or her [skin](http://www.webmd.com/skin-problems-and-treatments/picture-of-the-skin) with water from a sponge or garden hose.
* Apply ice packs to the patient's armpits, groin, neck, and back. Because these areas are rich with blood vessels close to the skin, cooling them may reduce body temperature.
* Immerse the patient in a shower or tub of cool water, or an ice bath.

After you've recovered from heat stroke, you'll probably be more sensitive to high temperatures during the following week. So it's best to avoid hot weather and heavy exercise until your doctor tells you that it's safe to resume your normal activities.

**Preventing Heat Stroke**

When the heat index is high, it's best to stay in an air-conditioned environment. If you must go outdoors, you can prevent heat stroke by taking these steps:

* Wear lightweight, light-colored, loose-fitting clothing, and a wide-brimmed hat.
* Use a [sunscreen](http://www.webmd.com/drugs/drug-366-sunscreen+top.aspx) with a sun protection factor (SPF) of 30 or more.
* Drink extra fluids. To prevent dehydration, it's generally recommended to drink at least eight glasses of water, fruit juice, or vegetable juice per day. Because heat-related illness also can result from salt depletion, it may be advisable to substitute an electrolyte-rich sports drink for water during periods of extreme heat and humidity.
* Take additional precautions when [exercising](http://www.webmd.com/fitness-exercise/guide/default.htm) or working outdoors. The general recommendation is to drink 24 ounces of fluid two hours before exercise, and consider adding another 8 ounces of water or sports drink right before exercise. During exercise, you should consume another 8 ounces of water every 20 minutes, even if you don't feel thirsty.
* Reschedule or cancel outdoor activity. If possible, shift your time outdoors to the coolest times of the day, either early morning or after sunset.

Other strategies for preventing heat stroke include:

* Monitoring the color of your urine. Darker urine is a sign of dehydration. Be sure to drink enough fluids to maintain very light-colored urine.
* Measuring your [weight](http://www.webmd.com/diet/tc/healthy-weight-what-is-a-healthy-weight) before and after physical activity. Monitoring lost water weight can help you determine how much fluid you need to drink.

Avoid fluids containing [caffeine](http://www.webmd.com/balance/caffeine-myths-and-facts) or alcohol, because both substances can make you lose more fluids and worsen heat-related illness. Also, do not take salt tablets unless your doctor has told you to do so. The easiest and safest way to replace salt and other [electrolytes](http://www.webmd.com/drugs/drug-3399-oral+electrolytes+oral.aspx) during heat waves is to drink sports beverages or fruit juice.

Check with your doctor before increasing liquid intake if you have [epilepsy](http://www.webmd.com/epilepsy/default.htm) or heart, kidney, or [liver](http://www.webmd.com/digestive-disorders/picture-of-the-liver) disease; are on fluid-restricted [diets](http://www.webmd.com/diet/default.htm); or have a problem with fluid retention.

If you live in an apartment or house without fans or air conditioning, try to spend at least two hours each day -- preferably during the hottest part of the day -- in an air-conditioned environment. At home, draw your curtains, shades, or blinds during the hottest part of the day, and open windows at night on two sides of your building to create cross-ventilation.

If you're a senior who either can't afford to buy or run an air conditioner, check with your local Area Agency on Aging for programs that can assist you. One such program is the Low Income Home Energy Assistance Program (LIHEAP).

**Dengue Fever**

Dengue fever is a painful, debilitating mosquito-borne disease caused by any one of four closely related dengue viruses. These viruses are related to the viruses that cause West Nile infection and yellow fever.

Each year, an estimated 100 million cases of dengue fever occur worldwide. Most of these are in tropical areas of the world, with the greatest risk occurring in

* the Indian subcontinent
* Southeast Asia
* Southern China
* Taiwan
* the Pacific Islands
* the Caribbean (except Cuba and the Cayman Islands)
* Mexico
* Africa
* Central and South America (except Chile, Paraguay, and Argentina)

Dengue fever is transmitted by the bite of an Aedes mosquito infected with a dengue virus. The mosquito becomes infected when it bites a person with dengue virus in their blood. It can’t be spread directly from one person to another person.

**Symptoms of Dengue Fever**

Symptoms, which usually begin four to six days after infection and last for up to 10 days, may include

* a sudden, high fever
* severe headaches
* pain behind the eyes
* severe joint and muscle pain
* nausea
* vomiting
* skin rash, which appears three to four days after the onset of fever
* mild bleeding (such a nose bleed, bleeding gums, or easy bruising)

**Treatment for Dengue Fever**

There is no specific medicine to treat dengue infection. If you think you may have dengue fever, you should use pain relievers with acetaminophen and avoid medicines with aspirin, which could worsen bleeding. You should also rest, drink plenty of fluids, and see your doctor. If you start to feel worse in the first 24 hours after your fever goes down, you should get to a hospital immediately to be checked for complications.

There is no vaccine to prevent dengue fever. The best way to prevent the disease is to prevent bites by infected mosquitoes, particularly if you are living in or traveling to a tropical area. This involves protecting yourself and making efforts to keep the mosquito population down.

**To protect yourself:**

* Stay away from heavily populated residential areas, if possible.
* Use mosquito repellents, even indoors.
* When outdoors, wear long-sleeved shirts and long pants tucked into socks.
* When indoors, use air conditioning if available.
* Make sure window and door screens are secure and free of holes. If sleeping areas are not screened or air conditioned, use mosquito nets.
* If you have symptoms of dengue, speak to your doctor.

To reduce the mosquito population, get rid of places where mosquitoes can breed. These include old tires, cans, or flower pots that collect rain. Regularly change the water in outdoor bird baths and pets' water dishes.

If someone in your home gets dengue fever, be especially vigilant about efforts to protect yourself and other family members from mosquitoes. Mosquitoes that bite the infected family member could spread the infection to others in your home.

**Malaria**

**Malaria** is a mosquito-borne disease caused by a parasite. People with malaria often experience fever, chills, and flu-like illness. Left untreated, they may develop severe complications and die. In 2008, an estimated 190 - 311 million cases of malaria occurred worldwide and 708,000 - 1,003,000 people died, most of them young children.

**Common symptoms of malaria**

In the early stages, malaria symptoms are sometimes similar to those of many other infections caused by bacteria, viruses, or parasites. Symptoms may include:

* [Fever](http://firstaid.webmd.com/fevers-causes-symptoms-treatments)
* Chills
* [Headache](http://www.webmd.com/migraines-headaches/default.htm)
* Sweats
* [Fatigue](http://www.webmd.com/a-to-z-guides/weakness-and-fatigue-topic-overview)
* [Nausea](http://www.webmd.com/digestive-disorders/digestive-diseases-nausea-vomiting) and vomiting

Symptoms may appear in cycles and may come and go at different intensities and for different lengths of time. But, especially at the beginning of the illness, the symptoms may not follow this typical pattern.

The cyclic pattern of malaria symptoms is due to the [life cycle of malaria parasites](http://www.webmd.com/hw-popup/life-cycle-of-malaria)  as they develop, reproduce, and are released from the red [blood](http://www.webmd.com/heart/anatomy-picture-of-blood) cells and [liver](http://www.webmd.com/digestive-disorders/picture-of-the-liver)cells in the human body. This cycle of symptoms is also one of the major indicators that you are infected with malaria.

#### Other common symptoms of malaria

Other common symptoms of malaria include:

* Dry (nonproductive) cough
* Muscle and/or [back pain](http://www.webmd.com/back-pain/default.htm)
* Enlarged [spleen](http://www.webmd.com/hw-popup/spleen-7445)

In rare cases, malaria can lead to impaired function of the [brain](http://www.webmd.com/brain/picture-of-the-brain) or spinal cord, seizures, or loss of consciousness.

Infection with the *P.* falciparum parasite is usually more serious and may become [life-threatening](http://www.webmd.com/hw-popup/life-threatening-complications-of-malaria).

There are [other conditions with symptoms similar](http://www.webmd.com/hw-popup/other-conditions-with-symptoms-similar-to-malaria-infection) to a malarial infection. It is important that you see your doctor to discover the cause of your symptoms.

## Prevention

Prevention of [malaria](http://www.webmd.com/hw-popup/malaria) involves protecting yourself against mosquito bites and taking anti malarial medicines. But public health officials strongly recommend that young children and [pregnant](http://www.webmd.com/baby/default.htm) women avoid traveling to areas where malaria is common.

#### Prevent mosquito bites

To prevent mosquito bites, follow these guidelines:

* Limit your outdoor activity between dusk and dawn. Stay in screened or air-conditioned rooms.
* Wear protective clothing (long pants and long-sleeved shirts).
* Use insect repellent with DEET (N,N diethylmetatoluamide). The repellent is available in varying strengths up to 100%. In young children, use a preparation containing less than 24% strength, because too much of the chemical can be absorbed through the [skin](http://www.webmd.com/skin-problems-and-treatments/picture-of-the-skin).
* Use bed nets (mosquito netting) sprayed with or soaked in an insecticide such as [permethrin](http://www.webmd.com/drugs/mono-8063-PERMETHRIN+CREAM+-+TOPICAL.aspx?drugid=5964&drugname=permethrin+top) or deltamethrin.
* Use flying-insect spray indoors around sleeping areas.
* Avoid areas where malaria and mosquitoes are present if you are at higher risk (for example, if you are pregnant, very young, or very old).

If you use a bed net treated with insecticide and use insect repellents on your clothes, you will reduce your risk of becoming infected with malaria. Other steps that may be helpful in reducing the risk of malaria include using air conditioning and electric fans, wearing protective clothing, using aerosol insecticides in your house, and taking certain anti malarial medicines.