

From VOA Learning English, this is **Science in the News**. I'm Faith Lapidus.

And I'm Bob Doughty. Today we talk about hot weather in the United States and around the world. We also tell you about the best ways to prevent and treat problems caused by extreme heat.

Floods, storms and other natural events kill thousands of people every year. So does extreme heat. In fact, experts say heat may be nature's deadliest killer.

Several hot days that follow each other are considered a heat wave. Experts say heat waves often become dangerous when the nighttime temperature does not drop much from the highest daytime temperature. This puts great pressure on the human body.

Over the past month, the northeastern United States has been very hot. Amtrak, the passenger railroad service, announced on July 18th that it was reducing the speed at which its trains travel in the Northeast. The reason: extreme heat. Amtrak said it made the decision after the temperature inside some train tracks rose above 48.9 degrees Celsius.

The hot weather also reached the northern state of Alaska. Alaska is known for cold weather in winter and mild summers. In June, the town of Talkeetna, 200 kilometers north of Anchorage, hit an all-time high of 35.5 degrees Celsius. The National Weather Service says the average temperature there for this time of year is 17.8 degrees.

How have some Americans avoided heat-related disorders, especially if they do not have air conditioners? In California, Nevada and Arizona, officials have set up “cooling centers” in libraries, community centers and homeless shelters.

Along the border with Mexico, additional officers have been deployed out of concern for people seeking to enter the United States. There was a report that at least three people who attempted to cross the border illegally into Arizona were found dead in June. Officials say they most likely died because of the extreme heat.

On the other side of the world, some people died in Shanghai, China during the city’s hottest July in 140 years. The temperature in several Chinese provinces hit over 39 degrees Celsius. One television station showed images of a piece of meat cooking in the street to demonstrate the extreme heat. The China Meteorological Administration warned people to limit outdoor activities.

In Australia, record-setting heat fueled bush fires across Tasmania earlier this year. The highest temperature, 49.6, was recorded in Moomba, South Australia.

Doctors say people can do many things to protect themselves from the dangers of extreme heat. Stay out of the sun, if possible. Drink lots of cool water. Wear light-colored clothing and hats made of natural materials.

Make sure the clothing is loose, permitting freedom of movement. Also, learn the danger signs of the medical problems linked to heat. The most common health problem linked to hot weather is heat stress. Usually, it is also the least severe.

Most people suffer only muscle pain because of heat stress. The pain is a warning that the body is becoming too hot. Doctors say those suffering muscle pain should stop all activity and rest in a cool place. They should also drink cool liquids. Doctors say not to return to physical activity for a few hours because serious conditions can develop.

Hot weather is dangerous for people who weigh too much and have too much body fat, and for people who drink alcohol. It also increases dangers for people who must take medicine for high blood pressure, poor blood circulation, nervousness or depression.

Untreated heat stress can lead to a more serious problem called heat exhaustion. A person suffering from heat exhaustion loses too much water through perspiration. He or she will feel weak and extremely tired. They may have trouble walking normally.

Heat exhaustion may also produce a fast heartbeat, breathing problems and pain in the head, chest or stomach. Doctors say people with such problems should rest quietly in a cool place and drink plenty of water. They also say it may help to wash with cool water.

Experts say even a two percent drop in the body's water supply may cause signs of dehydration. These signs include problems with memory and even simple mathematics. The treatment for dehydration exhaustion is the same as for heat exhaustion. Drink plenty of water and rest in a cool place. Even better, doctors say, drink about two liters of water a day so problems with dehydration will not have a chance to develop.

Heat exhaustion can lead to heat stroke if it is not treated. Heat stroke is the most serious disorder linked to hot weather. It results when the body is not able to control its temperature. The body temperature increases and perspiration fails.

Generally, the body temperature rises to more than 40 degrees Celsius. The body stops perspiring. The skin becomes dry and very hot. A person may become unconscious, not knowing what is happening.

Doctors say tissues and organs begin to cook when the body's temperature is higher than 42 degrees Celsius. Permanent brain damage and death may result. Someone suffering heat stroke requires immediate medical attention. Doctors say such treatment is necessary or the person could die before help arrives.

The purpose of immediate treatment is to cool the victim as quickly as possible to stop the temperature from increasing. Begin by moving the victim out of the sun. Raise the person's feet up about thirty centimeters. Take off the victim's clothing. Put cool water on the body. Place pieces of ice in areas where blood passageways are close to the skin. These include the back of the neck and under the arms.

Experts say it is important to know the danger signs of the medical disorders linked to hot weather. It is also important to know what to do if the signs appear in yourself or in someone else.

Experts say water is important for many reasons. Between 55 and 75 percent of the body is water. Water in blood carries hormones and antibodies throughout the body. Water in urine carries away waste materials. Water is needed for cooling the body on hot days, and when we are working or exercising. Water carries body heat to the surface of the skin. There, the heat is lost through perspiration.

Health experts say adults should drink about two liters of water a day to replace all the water lost in liquid waste and perspiration. They say people should drink more than that in hot weather. Experts say it is important to drink before, during and after exercise. They say we should drink water even before we start to feel like we need something to drink. During hot weather, cool liquids are best. Also, avoid sweet drinks and alcohol.

We need to add that doctors also say it is possible to drink too much water. Some people, for example, do this if they exercise hard during a heat wave. Experts with the Mayo Clinic say drinking too much water can cause hyponatremia. In this condition, the level of sodium in the blood falls too low.

The result is that the amount of water in the body increases. This causes cells to become larger. Mayo Clinic experts say the enlarged cells can cause a person to become sick or restless. They also can interfere with mental ability, make muscles weak and cause pain in the head. In a mild case, simply reducing fluids may be all that the person needs. But medical help is necessary if the condition is more severe.

Experts have suggestions for runners and others exercising or working hard in hot weather. They say drinking a sports drink with sodium in it can help prevent the condition. Doctors say actions other than drinking water can protect against the health dangers of heat. Stay out of the sun, if possible. Wear loose, lightweight and light colored clothes. Wear a hat or other head covering when in the sun. Eat fewer hot and heavy foods. If possible, cook foods during cooler times of the day. Also, rest more often. Physical activity produces body heat.

Experts say these simple steps can prevent the health problems linked to heat. They will prevent sickness, help you feel better and may even save your life.

This **Science in the News** was written by Milagros Ardin. Our producer was June Simms. I'm Bob Doughty.

And I'm Faith Lapidus. How hot is it where you are? You can leave a message on our Facebook page or visit our website, learningenglish.voanews.com. Join us again next week for more news about science on VOA Learning English.

