

What doctors want patients to know about heat stroke

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AT A GLANCE: Heat stroke and heat exhaustion can happen quickly during hot weather, strenuous activity or prolonged heat exposure. Here are eight key things you will learn about heat stroke from [Bilal Bangash, MD](#), a pulmonary and critical care physician at Bayhealth in Dover, Delaware, in this article:

- Early summer heat waves come with a high risk of heat stroke.
- Heat exhaustion, muscle cramps, fatigue and confusion are early symptoms of heat stroke.
- Infants, young children and older adults are at higher risk of heat stroke.
- If you see anyone with symptoms of heat stroke, call 911 immediately.
- The length of time to recover from heat stroke varies.
- Use the CDC's heat tracker to understand heat indexes.
- Finding a cooling center for relief from extreme heat.
- Wear sunscreen to protect yourself from sunburn.

As temperatures heat up this summer, the risk of heat stroke silently escalates and poses a hidden threat. Heat stroke—a severe form of heat illness—can strike swiftly and with little warning. That is why, with summer heat waves becoming more frequent and intense, understanding the dangers and recognizing the symptoms of heat stroke, heat exhaustion and other heat illnesses are crucial during warmer months.

Heat stroke occurs in about 20 out of every 100,000 people in the U.S. each year. Meanwhile, more than 60,000 people visit the emergency department each year for heat-related illness, and over 13% of those need hospitalization, according to the Centers for Disease Control and Prevention (CDC).

The AMA's What Doctors Want Patients to Know™ series gives physicians a platform to share what they want patients to understand about today's health care headlines.

In this installment, [Bilal Bangash, MD](#), a pulmonary and critical care physician at Bayhealth in Dover, Delaware, discusses what patients need to know about heat stroke.

[Bayhealth](#) is part of the [AMA Health System Member Program](#), which provides enterprise solutions to equip leadership, physicians and care teams with resources to help drive the future of medicine.

Beware of the early summer heat wave

"Heat stroke is a severe heat-related illness that involves a significant elevation in body temperatures, usually as a result of prolonged exposure to high temperatures or physical exertion in high temperatures," Dr. Bangash said, noting "heat stroke is seen most commonly when there's a sudden increase in environmental temperatures."

"The early summer heat wave is when it's the highest risk of heat stroke, as people have not acclimated to the temperature changes," he said. "Geographically, it can happen in all ... regions of the country."

"In a majority of the cases of heat stroke, body temperatures are usually over 104° F or 40° C," Dr. Bangash said. In terms of the outside environment, when the heat index is more than 90° F, this poses "the highest risk of developing a heat stroke."

The heat index, a combination of air temperature and relative humidity, is what the temperature feels like to the human body.

Watch out for early signs of heat stroke

"The earliest phase of heat stroke is called a hyperthermic neurologic phase," Dr. Bangash said. "You'll see hyperthermia, a significant elevation of body temperature, causing confusion, slurred speech, agitation and sometimes irritability. In severe cases, seizures and coma are possible."

Another early sign can be heat exhaustion, which is less dangerous than heat stroke. Symptoms of heat exhaustion include muscle cramps, headaches, dizziness, weakness, fatigue, nausea and vomiting.

Your skin is mostly dry in heat stroke

“Heat exhaustion is one of the milder forms of heat-related illness. It occurs when the body loses an excess amount of water and salt, typically from sweating,” Dr. Bangash said. “So, people who have heat exhaustion can experience generalized weakness and excessive sweating.”

Meanwhile, “heat stroke is the more severe form of heat-related illness, where you see more neurologic symptoms and much less sweating because the sweating mechanisms have been exhausted,” he said.

Kids, older adults are at higher risk of heat stroke

“In children, the central nervous system is not fully developed. And similarly in adults 65 or older, the central nervous system—although fully developed—starts to deteriorate, which makes your body less able to cope with changes in the body temperature,” Dr. Bangash said. “So, both age groups are at higher risk.

“When these populations experience a heat stroke, they present with more significant neurologic symptoms such as seizures, delirium, hallucinations and difficulty with speech and hearing,” he added.

Those without air conditioning in their homes or people without housing are also at increased risk and helping these populations locate [local cooling centers](#) is an important resource physicians and public health officials can provide during extreme heat.

Chronic illnesses can increase heat stroke risk

“Certain chronic illnesses—such as heart or lung diseases—can increase your risk of heat stroke,” Dr. Bangash said. “And that has to do with the effect of those long-term diseases on the central nervous system and the ability of the body to regulate its temperature.

“In addition, obesity, sedentary lifestyle and a history of a prior heat stroke also put you at risk” he added.

Other groups of people who are at an [increased risk of heat-related illness](#) include athletes, outdoor workers and people who are pregnant.

Act quickly with heat stroke

“If you see anyone who shows any signs of heat stroke, the immediate steps should be to call 911 and try to get that patient to the hospital,” Dr. Bangash said. Noting “while waiting on paramedics, do not hesitate to initiate first aid, and try to get the person to an air-conditioned environment or at least to a cool, shady area and remove any unnecessary clothing.”

“Rapid and effective cooling is a cornerstone of treatment,” he emphasized. “So, if you can, use a fan, ice packs, cold water, air conditioning, or whatever you can to bring the body temperature down as quickly as possible and as fast as possible until first responders arrive to take over care.

“As soon as you start seeing early signs, which are very high body temperatures, dry skin, any kind of neurologic symptoms, confusion or something as simple as a headache, that should alert you to a possibility of heat stroke,” Dr. Bangash said. “Those patients need to get emergency medical attention quickly.”

“Unfortunately, the longer the body temperature stays high, the higher the risk of complications,” he said. That is why it is important to try “to reduce the body temperature as soon and as fast as you can. Despite normalization of core temperature with cooling, many patients can still display complications which include multi-organ dysfunction such as injury to the gut, kidneys, skeletal muscle and other organ systems.”

The time to recover from heat stroke varies

With heat stroke, “age, severity of illness and the underlying health of a person are all factors that impact the recovery process,” Dr. Bangash said. “But usually, at a minimum, in younger adults and those with milder illness, it could take up to a week or more to see some recovery from a heat stroke.”

Ultimately, recovery from heat stroke typically requires up to two days in the hospital for rapid body cooling, IV fluids and monitoring of kidney and liver function. It is then followed by several weeks of rest. But, again, how long the effects of heat stroke last depend on age, overall health and the severity of organ or cognitive complications.

It is also recommended that you avoid hot environments and strenuous physical activity for at least seven to 21 days following a heat stroke.

Use the CDC heat tracker as a guide

“One of the things that we commonly misunderstand is that it’s not always the higher temperature. There’s also the heat and the humidity combined,” Dr. Bangash said. “The [CDC’s heat tracker](#) does a very good job in tracking the heat index.”

The CDC’s Heat and Health Tracker calculates where people are most likely to feel the effects of heat on their health by incorporating weather data with historical temperature, heat-related illness, and community characteristics.

“That’s very valuable information because depending on what the heat index is or what the heat tracker tells you, you have to be very careful about how much exposure you have to the external climate,” he added. Otherwise, you are at risk of heat exhaustion, heat stroke or other heat illnesses.

Pay attention to what you wear

“One of the things that really needs to be paid attention to is the type of clothing that’s worn,” Dr. Bangash said. “It’s very important to wear lightweight, loose-fitting clothing.

“Tighter and extra layers of clothing will prevent heat dissipation or heat release from the body and affect your overall body temperature,” he explained.

Protect yourself from sunburn

“Sunburn prevention is also key,” Dr. Bangash said. That is “because areas of sunburn cannot release heat therefore trapping heat in the body.”

[Wearing sunscreen](#) with an SPF of 30 or higher is one of the easiest ways to protect your skin from sunburn.

For the first time since the late 1990s, the Food and Drug Administration (FDA) [has approved a new sunscreen ingredient](#) for the U.S. market: bemotrizinol. This ingredient gives people in the U.S. access to a skin-protecting chemical that has long been used in Europe and other parts of the world. According to the FDA, bemotrizinol met the agency’s standards for protection from dangerous UV rays while causing little irritation or absorption into the skin. Bemotrizinol is considered safe and effective for use by adults and children who are 6 months or older.

Drink plenty of water

“Another very important measure to keep in mind is hydration,” said Dr. Bangash. “It’s imperative to drink plenty of fluids because the more you hydrate, the more you’re able to sweat and maintain a normal body temperature.”

The amount of water you drink “really depends on what exertion you’re doing, but you should definitely be drinking more than what you usually drink,” he said. “It’s important to have water with you or be close to a water source, especially when you’re exerting yourself outdoors.”

This also means “staying away from or limiting alcohol consumption. People make this very common mistake. Alcohol does not help with overall body temperature regulation at all,” Dr. Bangash warned.

Double-check your medications

“For people taking medications for chronic medical conditions,” said Dr. Bangash, “it’s very important to know your medications and your conditions to see if they put you at an increased risk of heat stroke, heat exhaustion or other heat illness.”

“In those cases, you have to take it easy, try to avoid the hottest parts of the day and limit the time spent outdoors during a heat wave specifically,” he added.

Be careful when traveling

“When traveling, it’s important to be aware of areas with a heat index of more than 90 degrees,” said Dr. Bangash, “or with rapid changes in climate during the early summer heat wave, as it puts you at a much higher likelihood of heat stroke, heat exhaustion or other heat illness.”

“Whether it’s an area where you live or where you’re traveling, you have to be very careful about what the temperature changes and heat indices are going to be on those days,” he emphasized.

Avoid strenuous activities in heat

“All kinds of strenuous activities for prolonged periods in high temperatures will put you at risk,” Dr. Bangash said. “But the most common ones that we’ll see are military training, and sports such as football, soccer, basketball or long-distance running.”

“A very important point to keep in mind is even after you’ve had a heat stroke and you’re on the path to recovery or you have recovered, it takes a few weeks for your body to go back to a normal temperature balance,” he said. “So, you still have to try and avoid strenuous physical activity for at least a week after recovery from a heat stroke and allow your body and brain time to get back to its normal balance of temperature regulation.”

Do not leave children in cars

“Another thing I want to emphasize, especially with the changing climate, is to please, at all costs, do not leave children in a car,” Dr. Bangash said. “What a lot of us underestimate is the rate of temperature rise in a car on a hot, sunny day.”

“It takes minutes for the temperature to rise inside a car. The extreme heat and humidity inside the car significantly increases the risk of heat stroke in children,” he said. “There are cases where children are removed from the car, however they manage to climb back into unlocked cars and are unknowingly left unattended putting themselves at risk of heat stroke and even death.”