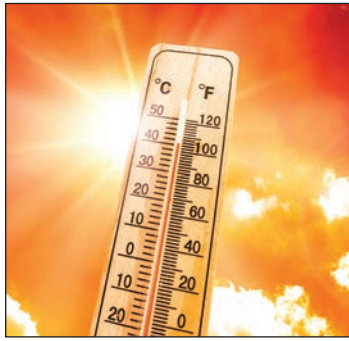


What is the most dangerous weather event?



More people die from heat than any other extreme weather. An estimated 1,300 deaths per year in the United States are due to extreme heat. Each year, there are 6,512 emergency department visits and an average of 9,235 people hospitalized in the U.S. from extreme heat.

What happens to the body in extreme heat?

The human body is not designed to handle excessive heat. Our bodies work best within a temperature window, generally between 96.8° and 98.6°F, depending on the individual. If the core body temperature goes higher, the body tries to get rid of excess heat, causing blood vessels to dilate. At the same time, the heart begins beating faster, and pushes blood flow to the skin. There, the blood can release heat to cool down. Meanwhile, sweating starts to cool the skin.



Yet there is a limit to how much the body can adjust. It depends on an individual's health, as well as the temperature and humidity. If the outside temperature is hotter than the body, the skin will not release the heat as needed. When humidity is high, sweating will not cool the skin because the sweat cannot evaporate. In 2008, two scientists suggested that humans cannot cool off well if they spend extended time indoors when it is humid, and the temperature is over 95°.



If the body continues to heat without a break, it can cause weakness, dizziness, and nausea. If someone still does not cool off, heat stroke may occur. This occurs when the body's ability to regulate heat breaks down. This can allow core body temperatures to climb as high as 104°F. Heat stroke can trigger seizures, convulsions or even a coma. Without treatment, death may follow.

Who is most vulnerable in excessive heat?



People who work outdoors and athletes who exercise during extreme heat are at high risk of experiencing heat stroke. Others at significant risk from excessive heat include infants, children up to four years of age, people 65 years of age and older, asthmatics, individuals who are overweight, and those who are ill or on certain medications.

The elderly are extremely vulnerable during heat episodes.

The elderly are often considered the most vulnerable. They have fewer sweat glands, and their bodies respond more slowly to rising temperatures. Hotter days can make it difficult for the body to regulate temperature. This can be challenging for older adults, who typically do not adjust as well as others to sudden temperature changes. Older adults are also more likely to have chronic medical conditions that affect the body's response to temperature, or they may take prescription medicines that decrease their ability to control temperature. All this means that older adults are at higher risk for heat-related illnesses and death.



The very young are also in danger from excessive heat.



Babies and children sweat less, reducing their ability to cool down, putting them at higher risk of overheating and developing heat-related illnesses. Infants and young children rely on others to keep them cool and hydrated when it is hot outside. Babies can easily get dehydrated in excessive heat. Warning signs are: if a child has not urinated for six hours or longer, and having a dry mouth and lips. Removing the child from the heat will prevent a medical emergency.

Extreme heat is dangerous for asthmatics.

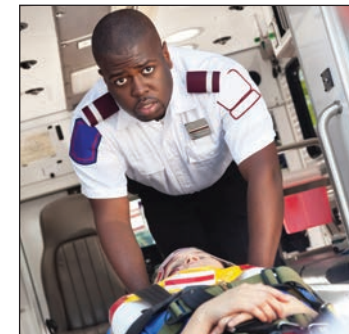
Hot weather aggravates asthma. Heat and humid conditions can lead to the constriction and narrowing of airways, which makes breathing



difficult for people with asthma. Heat also increases the risk of air pollution. It traps ozone and particulate matter from cars, trucks, and other sources. Air pollution, ozone and pollen increase when the weather is hot and humid.

During the summer months, the air can become stagnant. This situation traps unhealthy air that contains pollens, dust, mold and pollutants. These are all asthma triggers and can cause an asthmatic additional breathing problems.

Everyone is vulnerable to heat stroke.



Heat stroke can affect anyone if the temperature and humidity are high enough. Heat stroke occurs when the body can no longer control its temperature and body temperature rises rapidly. When heat stroke occurs, the body temperature can rise to 106°F or higher within 10 to 15 minutes. When core temperature rises, cell death in various body organs sets off an inflammatory cascade, causing further injury. Prolonged heat exposure leads to collapse of blood pressure, fluid pouring into the lungs causing low oxygen and suffocation, and ultimately shutdown of organs and death.

The underserved are often unprotected in extreme heat.



Populations with lower incomes face 40% higher exposure to heat waves than people with higher incomes. Poor neighborhoods and many neighborhoods of color tend to have less tree canopy coverage, more asphalt streets, and greater building

density, all of which adds and retains heat. Population density contributes to higher temperatures as well, as more people in one area means more body heat and more electricity use, which can raise temperatures. Some densely populated urban areas have been measured to be as much as 22°F hotter than suburban counterparts. The underserved are far less likely to own or use air conditioning because of cost barriers. This fact also puts them at great risk from extreme heat.

How can people be protected from extreme heat?

Air conditioners become critical during heat episodes, especially for asthmatics. Asthmatics cannot use fans, since they tend to blow the allergens around and make things worse. Air conditioners not only cool the air, but they also clean the air while cooling it. For asthmatics they are extremely important.

If air conditioning is not feasible, it's helpful to spend time during the midday in a place that does have air conditioning, like your library, store, or a friend's home. If your area has a cooling center, it can be important as well. Cool drinks and cool baths can also help keep the body temperature in check.



Recommendations to help the underserved in extreme heat.

The underserved become vulnerable because many cannot afford air conditioners. However, there is much that can be done. A few suggestions follow:

- Increase the number of indoor cooling centers in the areas that have the greatest number of underserved people.
- Set up outdoor cooling stations.
- Make sure that all cooling centers are wheelchair-accessible.
- Reduce urban heat with more green spaces, planting trees, cooling of pavements in heat-vulnerable neighborhoods.
- Provide the funds for air conditioners, including money to pay for electric bills. New York City has a Home Energy Assistance Program (HEAP), which is a federally funded program that provides financial assistance for the cost of air conditioning units or fans. One survey of New Yorkers found that 24% of respondents infrequently or never used their air conditioners because of utility bill costs, which is why it is so important to provide funds for the electricity costs as well.

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The Dangers of Heat to the Elderly, the Very Young, and Asthmatics



ENVIRONMENT & HUMAN HEALTH, INC.
1191 Ridge Road
North Haven, Connecticut 06473
Phone (203) 248-6582 Fax (203) 288-7571
www.ehhi.org