

Climate Change Health Effects and What You Can Do

Climate change is a change in the normal climate conditions, such as temperature and rainfall, in an area over a period of time. Climate change is caused by the greenhouse gas effect. The greenhouse gas effect is when greenhouse gases (such as carbon dioxide, methane, nitrous oxide, ozone) in Earth's atmosphere block heat from escaping, making the Earth warmer. There are a lot of factors that contribute to the Earth's climate, but scientists agree that Earth has been getting warmer in the past 100 years because of human activities that produce greenhouse gases. Some of these activities include burning fuel, driving cars, and power plants. The effects of climate change include greater fluxes in temperature and rainfall, and more frequent and severe heat waves, wildland fires, droughts, thunderstorms, flooding, and hurricanes. Climate change can also affect our health. This fact sheet discusses causes of climate change and its impact as well as ways we can help limit these problems.

Mental Health

- Extreme heat can increase mood and behavioral disorders in people with mental illnesses and in elderly people.
- Major weather events (ex., floods, wildland fires) are linked with depression, anxiety, post-traumatic stress disorder (PTSD), and substance abuse.

Lungs

- Dust storms and wildfire smoke can increase inflammatory responses and exacerbate asthma.
- Air pollution can contribute to onset and exacerbation of asthma, allergic rhinitis, atopic dermatitis, and contact dermatitis.

Heart and Blood

- Air pollution exposure is linked to heart and blood vessel problems such as high blood pressure, heart attacks, cardiac arrhythmias, and ischemic stroke.
- Air pollution exposure early in life can increase risk for harmful cardiopulmonary effects in childhood.

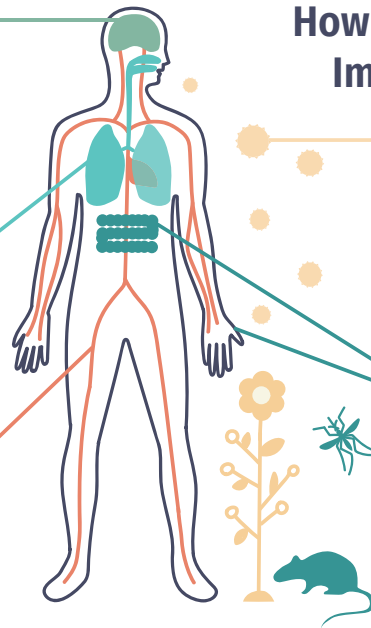
How Can Climate Change Impact Your Health?

Immunity and Allergy

- Greenhouse gases increase pollen levels and spread.
- Inhaling air pollutants may allow for allergen particles to get into your airways more easily.
- Poor air quality can increase your susceptibility to respiratory infections.

Germs and Spread of Infection

- Longer warm seasons allow for more disease from infections spread by insects (ex., West Nile virus) and rodents (ex., leptospirosis).
- Heavy rains and storm runoff increase the spread of waterborne pathogens (ex. Cholera, Cryptosporidium), which can contaminate water and lead to intestinal problems such as diarrhea.



Human activity contributing to climate change

Climate change has been worsened by population growth and the use of fossil fuels (gasoline, oil, natural gas), with activities including:

- Heavy use of burning (combustible) fuels (such as coal, oil, natural gas)
- Exhaust fumes from cars, trucks, and other forms of transportation
- Methane gases from animals grown as food and farm equipment combustion
- Increased industrial production
- Release of carbon dioxide through deforestation and wildfires
- Emissions from industrial grade fertilizers and agricultural practices
- Decomposition and burning of waste at landfills

Who is Most Vulnerable to the Health Effects of Climate Change?

Everyone is at risk of having health problems from climate change, but some groups have higher exposure to factors that increase their risk.

- Children breathe more air and drink more water per body weight than adults, while still growing and developing their immune systems. They tend to spend more time outdoors and have more exposure to elements in the air.
- Pregnant women experience many changes that make them more vulnerable to extreme temperatures and dehydration. Extreme heat and air pollution are linked with negative birth outcomes for the developing baby, such as preterm birth (early delivery) and low birth weight.
- Elderly people have more fragile immune systems, often have other health conditions, and may have limited mobility.
- Low-income communities have less access to resources to evacuate in times of emergencies. They have increased exposure to environmental factors such as air pollution that are linked to poorer health outcomes.
- Communities of color, including indigenous people and immigrants, experience health disparities because of structural racism and may also have cultural barriers, including language barriers.
- Certain occupational groups may also face increased risks because of where they work and what type of work they do. For example, extreme weather conditions can affect outdoor workers. Extreme heat can impact indoor workers who work in already hot indoor workplaces.

What Can I do to Avoid Health Problems From Climate Change?

Reduce your risk of health effects by being prepared for climate events.

- Have an emergency plan, including contact numbers, equipment, medications, and food (www.ready.gov)
- Keep up to date on climate events in your area by checking local alerts for storm, heat, and high air pollution. AirNow reports local air quality using the Air Quality Index, a color-coded index that tells you whether air quality is healthy or unhealthy for you (see www.airnow.gov). Smoke Sense is a mobile app by the EPA that lets you know the current and future Air Quality Index and wildland fires in your area.

For extreme heat

- Each spring, check your household's fans, air conditioners, and other cooling equipment to make sure they are working properly. Know the location of your nearest cooling center(s).

- If you work outdoors or in a physically demanding job without air conditioning, take frequent breaks and make sure you drink enough water. Encourage your employer to develop a heat response plan.

Air pollution and wildfires

- Avoid rigorous exercise outdoors on high air pollution days or during wildfires
- When outdoor air pollution levels are very high, stay indoors with windows and doors closed, and close fresh intake on air conditioning units
- Consider using an indoor air cleaner with a high-efficiency particulate air (HEPA) filter

Authors: Sharon Chinthrajah MD, Erika Garcia PhD, Zainab Hasan, Angela Hy, Lauren Wong

Reviewers: Mary Rice MD, Marianna Sockrider, MD DrPH

Resources:

For health impacts related to climate change:

Centers for Disease Control and Prevention (CDC)

- *Climate Effects on Health:*
www.cdc.gov/climateandhealth/effects/
- "Preparing for the Regional Health Impacts of Climate Change in the United States."
www.cdc.gov/climateandhealth/docs/Health_Impacts_Climate_Change-508_final.pdf

American Lung Association

- Climate Change and Lung Health
www.lung.org/clean-air/climate-change/climate-change-lung-health

U.S. Environmental Protection Agency

- *Climate Change and Health Factsheets:*
19january2017snapshot.epa.gov/climate-impacts/climate-change-and-health-factsheets_.html
- *Climate Impacts on Human Health:*
19january2017snapshot.epa.gov/climate-impacts/climate-impacts-human-health_.html

American Thoracic Society

- *Patient Resources*
www.thoracic.org/patients/patient-resources/fact-sheets-az.php

For helping my community limit climate change:

Vote for bills and representatives that will act against climate change

Write a letter to your representative

- *How to Write a Letter to Congress—Citizen's Climate:*
citizensclimatelobby.org/how-to-write-a-letter-to-congress/

Join campaigns and take individual action against climate change—small steps can add up if we all do something!

- *UN Campaign for Individual Action—Toward a net zero future:*
www.un.org/en/actnow
- *Healthy Air Campaign—American Lung Association:*
www.lung.org/policy-advocacy/healthy-air-campaign/about-healthy-air-campaign
- *Get involved 350: A movement to build a world safe from effects of the climate crisis:*
<https://350.org/get-involved/>

This information is a public service of the American Thoracic Society. The content is for educational purposes only. It should not be used as a substitute for the medical advice of one's healthcare provider.