

Tips for staying safe on poor air quality days

When North Carolina experiences a period of soaring temperatures, it often leads to poor air quality, which poses a public health risk, especially for children, the elderly, pregnant women and folks with underlying health conditions. What follows is a guide that includes resources and tips provided by state and other agencies to help you stay safe as the outdoor temperature hovers near the triple digit mark while air quality dips.

Below are two graphic illustrations provided by [cleanAIRE NC](#) that details the toll that extreme heat and poor air quality place on people and the environment.



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HEALTH IMPACTS OF CLIMATE CHANGE: EXTREME HEAT

Heat is one of the leading weather-related killers. Warmer average temperatures and hotter days are leading to longer and more severe heat waves. As heat increases, body temperature and heart rate rise, resulting in severe health problems such as dehydration, heat stress, heat exhaustion, and heat stroke as the body is overwhelmed by heat. Extreme heat can also amplify the risk of cardiovascular, respiratory, and cerebrovascular diseases.

Heat is also a significant contributing factor in creating ground-level ozone, a serious health hazard. Ground-level ozone reduces lung function and inflames the linings of our lungs.

Approximately
300,000
people living in North Carolina are especially vulnerable to extreme heat.

Though urban areas are traditionally considered more susceptible to extreme heat issues, heat-related illnesses in North Carolina are most common in rural areas for the following reasons:

- Outdoor occupational labor is more common in rural areas, with higher concentrations of residents working in agriculture and construction than in urban locations
- Many rural residents cannot afford proper air conditioning
- Rural locations experience greater overall social vulnerability, putting them at higher risk for natural hazards such as extreme heat

Populations most likely to be impacted by extreme heat:

Young children
Pregnant women
Outdoor workers
Student athletes
Homeless people
The elderly
And people with certain medical conditions

The number of extreme heat days is expected to increase in the coming years.

By 2050, approximately 20% of the year, or about 70 days, are expected to have temperatures above

105°

In 2000, North Carolina experienced only 14 days at this temperature.



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On high-heat days, a public safety hazard to be aware of is ozone. There are two ozone layers – one exists in the stratosphere, which roughly begins at 11km (6.84 miles) above the ground and extends to 50 km (31.1 miles).

The other layer exists in the troposphere, which begins at ground level and extends upward to about 11 km, according to [Viney Aneja](#), a professor in NC State's Department of Marine, Earth and Atmospheric Sciences. Stratosphere ozone is also referred to as ground-level ozone and occurs when pollutants from vehicles and industry combine with warm, dry air and sunlight.

The North Carolina ozone season begins on March 1 and ends on October 31.

During ozone season, urban areas experience higher levels of ozone pollution than rural areas due to more vehicle traffic, says Aneja. He stresses that people who are more susceptible to poor air quality days such as children and elderly people, should follow the EPA recommendation, which is to "stay indoors during high ozone periods," he said.

Ground-level ozone is one of the most widespread air pollutants in the U.S. and has been linked to a host of health issues such as asthma, among other illnesses.



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HEALTH IMPACTS: PARTICULATE MATTER & OZONE

PARTICULATE MATTER

Particulate matter (PM10 & PM2.5) is made up of air pollutant particles, either emitted directly or as byproducts from a chemical process. These particles come from a variety of sources, such as factories, automobiles, construction vehicles, wood burning, and agriculture sites.

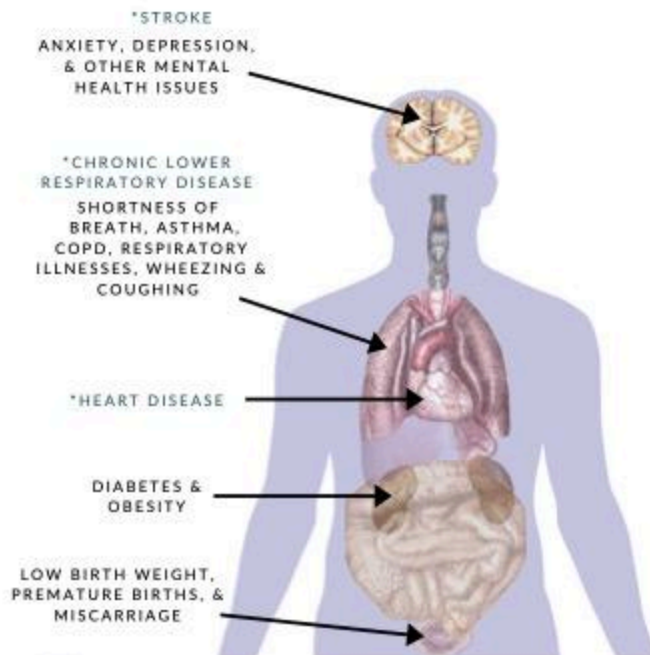
GROUND-LEVEL OZONE

Ground-level ozone (O3) is formed from a chemical reaction between oxides of nitrogen and volatile organic compounds that are emitted from car exhaust, paint, aerosol products, and manufacturing facilities.



Both particulate matter and ozone are leading contributors to air pollution. Air pollution can affect more than just the lungs; it can be a significant factor of many health issues, including

*3 OF THE 5 LEADING CAUSES OF DEATH IN NC



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To limit exposure to poor air quality during ozone season CleanAIRE NC recommends the following:

- If you have a smartphone or access to a computer, check the weather app for air quality and the [NCDEQ website to access the Air Quality Forecast \(AQF\)](https://deq.nc.gov/about/divisions/air-quality/air-quality-outreach-education/air-quality-forecasts) in your area
(<https://deq.nc.gov/about/divisions/air-quality/air-quality-outreach-education/air-quality-forecasts>). [Air Quality Index \(AQI\)](#) also provides this information
- If possible, avoid doing outdoor activities between 2pm – 7pm, which is considered the daily peak-heat period
- Ideally, when exercising outdoors, choose a shady area in a park away the highway to avoid excessive heat and vehicle-generated pollutants
- To reduce pollutant exposure while trying to stay cool, use the recirculation function on your home and/or vehicle a/c units
- If you do not have an air conditioner at home, local libraries and community cooling stations provide respites from excessive heat and poor air quality days
- Using a HEPA improve air quality in your home

As the planet continues to warm and events like wildfires and pollutants from vehicles and industry continue to threaten air quality, Aneja says there are concrete things we can do to improve the environment, such as taking shorter commutes, relying more on public transit and bicycles as well as transitioning from gas-powered vehicles to electric ones.

“There are meaningful solutions. The question is are we, the American public, willing to change our lifestyle to impact the pollution in the atmosphere?”