Health Risks of Ozone Pollution

Ozone is the nation’s most widespread air pollutant. Ozone (O₃) is a gas molecule made up of three oxygen atoms. Sometimes called smog, ozone pollution forms in the atmosphere when gases that come out of tailpipes, smokestacks and other sources react in the presence of sunlight. The gases that react to form ozone are volatile organic compounds, nitrogen oxides, and carbon monoxide.¹ Ozone levels typically rise between May and October when higher temperatures, increased sunlight, and stagnant atmospheric conditions transform air pollutants into ozone. Rising temperatures from climate change will make it harder to reduce ozone.

When a person inhales ozone pollution, it reacts chemically (“oxidizes”) with the body’s internal tissues causing inflammation, like a “sunburn” of the lung. Ozone acts as a powerful respiratory irritant at the levels frequently found across the nation especially during the summer months.

Independent scientists and U. S. Environmental Protection Agency (EPA) concluded that ozone pollution posed multiple, serious threats to health. The EPA engaged a panel of expert scientists, the Clean Air Scientific Advisory Committee, and the public in a four-year process to help them assess all available research. Their findings, published in 2013, are highlighted in the box below, along with a few of the hundreds of studies they cited.

<table>
<thead>
<tr>
<th>EPA Concludes Ozone Pollution Poses Serious Health Threats²</th>
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<tbody>
<tr>
<td>✔ Causes respiratory harm (e.g. worsened asthma, worsened chronic obstructive pulmonary disease [also known as COPD, which includes emphysema and chronic bronchitis])³</td>
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<td>✔ Likely to cause early death⁴</td>
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<td>✔ Likely to cause cardiovascular harm (e.g. heart attacks, strokes, heart disease, congestive heart failure)⁵</td>
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<td>✔ May cause harm to the central nervous system⁶</td>
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<td>✔ May cause reproductive and developmental harm⁷</td>
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The current national air quality standards do not protect millions of vulnerable people from the health threats from ozone pollution. Five groups of people are especially vulnerable to the effects of breathing ozone:⁸

- children and teens;
- anyone 65 and older;
- people with existing lung diseases, such as asthma and COPD;
- people with cardiovascular disease; and
- people—even healthy adults—who work or exercise outdoors.

EPA needs to set strong national air quality standards to protect public health as required under the Clean Air Act.

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