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Air pollution in major cities for lungs is as bad as smoking 20 cigarettes a day

Long-term exposure to air pollution can worsen lung disease as much as smoking a pack of cigarettes every day for 29 years.

Air pollution in major metropolitan cities can worsen pre-existing lung conditions, the effects of which have been likened to people who have smoked cigarettes for most of their adult life.

Inflammation of the lungs from polluted environments can trigger conditions such as [asthma](#), [chronic bronchitis](#), [emphysema](#) and [chronic obstructive pulmonary disease \(COPD\)](#).

Published in the [Journal of the American Medical Association](#), the study examined how exposure to four main pollutants affected lung health in over 7,000 adults aged 45 to 84 living in six major US cities.

The researchers, from the University of Washington, measured levels of fine particulate matter, ozone, nitrogen oxide and black carbon outside and carried out CT scans to look at the development of emphysema and other lung conditions.

When participants were followed up 10 years later, researchers found that long-term exposure to all of the pollutants was linked to an increased percentage of emphysema seen on a CT scan.

Cities with high levels of ground-level ozone showed the biggest link to a decline in lung function, which is roughly the equivalent of smoking a pack of cigarettes every day for 29 years.

Dr Joel Kaufman, from the University of Washington, said: "We were surprised to see how strong air pollution's impact was on the progression of emphysema on lung scans, in the same league as the effects of cigarette smoking, which is by far the best-known cause of emphysema."

Ground-level ozone is produced when UV light reacts with pollutants from fossil fuels, and the process is accelerated by heatwaves.

Despite most levels of air pollution decreasing due to successful efforts to reduce them, ozone levels have been increasing.

The authors said it was not clear exactly what level of air pollution is safe for us to live in without the risk of lung complications.

Professor Stephen Holgate of the University of Southampton who was not involved in the study said: "It has been known for some time that in those genetically susceptible to emphysema, cigarette smoking and air pollution accelerate their development of emphysema."

He added: "This important study adds to the massive evidence base that air pollution, in this case specifically ozone, is harming people, especially those who are vulnerable with co-existent lung disease."

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