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Air pollution restricts children's lung development, study suggests

Children exposed to air pollution have poor lung health, putting them at risk of lifelong breathing disorders, research shows.

The study – based on samples in London's Low Emission Zone (LEZ) – showed that lung problems persisted despite small improvements in air quality.

Experts say that efforts to reduce pollution in towns and cities need to be more ambitious in order to protect health.

London's city-wide emission zone – which restricts or penalises vehicle entry to urban areas – was introduced in 2008. Scotland's first LEZ comes into effect in Glasgow on 31 December.

The five-year study monitored more than 2000 eight and nine-year olds from 28 primary schools in areas of London that fail to meet current EU nitrogen dioxide limits.

The research team – led by Queen Mary University of London, King's College London and the University of Edinburgh – looked at children's health and exposure to pollutants following the introduction of the LEZ.

Findings show that children exposed to pollution were more likely to have small lungs, which was linked to higher levels of exposure to diesel emissions, including nitrogen dioxide.

Despite improvements in some measures of air quality over time, there was no evidence of a reduction in the proportion of children with small lungs or asthma symptoms, the study suggests.

Air pollution is a leading cause of health problems, including breathing disorders, asthma, and chest infections worldwide. It causes more than four million people deaths each year. Children are especially vulnerable to its effects.

The study, published in *Lancet Public Health*, is a collaboration between the Medical Research Council Asthma UK Centre in Allergic Mechanisms of Asthma and the Asthma UK Centre for Applied Research.

Ranked among the top universities in the world

Professor Aziz Sheikh, co-Director of Asthma UK Centre for Applied Research at the University of Edinburgh, who was involved in the study, said: “Air pollution is one of the leading causes of death and disability in Scotland. This study provides further evidence that air pollution is affecting our children’s lung health development – with likely lifelong consequences.

“Our findings suggest that Low Emission Zones and related attempts to improve air quality will need to be ramped up in order for health benefits to be seen.”

Professor Chris Griffiths, Professor of Primary Care at Queen Mary University of London, who co-led the study, said: “Despite air quality improvements in London, this study shows that diesel-dominated air pollution in cities is damaging lung development in children, putting them at risk of lung disease in adult life and early death.

“This reflects a car industry that has deceived the consumer and central government which continues to fail to act decisively to ensure towns and cities cut traffic.”

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