

# Air pollution linked to high blood pressure in children; other studies address air quality and the heart

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A meta-analysis of 14 air pollution studies from around the world found that exposure to high levels of air pollutants during childhood increases the likelihood of high blood pressure in children and adolescents, and their risk for high blood pressure as adults. The study is published in a special issue on air pollution in the *Journal of the American Heart Association*.

Other studies look at: the effects of diesel exhaust on the muscle sympathetic nerve; the impact of pollutants on [high blood pressure](#); rates of hospital readmission for [heart failure](#) among those exposed to high levels of ambient air [pollution](#); and risk of stroke and heart attack after long-term exposure to high levels of particulate matter. The studies include health outcomes of people who were exposed to pollutants in the United States, China and Europe.

High [blood pressure](#) during childhood and adolescence is a risk factor for hypertension and

heart disease in adulthood. Studies on air pollution and blood [pressure](#) in adolescents and [children](#), however, have produced inconsistent conclusions. This [systematic review](#) and meta-analysis pooled information from 14 studies focused on the association between air pollution and blood pressure in youth. The large analysis included data for more than 350,000 children and adolescents (mean ages 5.4 to 12.7 years of age).

"Our analysis is the first to closely examine previous research to assess both the quality and magnitude of the associations between air pollution and blood pressure values among children and adolescents," said lead study author Yao Lu, M.D., Ph.D., professor of the Clinical Research Center at the Third Xiangya Hospital at Central South University in Changsha, China, and professor in the department of life science and medicine at King's College London. "The findings provide evidence of a positive association between short- and long-term exposure to certain environmental air pollutants and blood pressure in children and adolescents."

The analysis included 14 studies published through September 6, 2020, exploring the impact of long-term exposure (>30 days) and/or short-term exposure (

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