

Road pollution blamed for higher allergy risk in kids

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New evidence blames traffic-related pollution for increasing the risk of allergy and atopic diseases among children by more than fifty percent. What's more, the closer children live to roads, the higher their risk.

"[Children] living very close to a major road are likely to be exposed not only to a higher amount of traffic-derived particles and gases but also to a more freshly emitted aerosols which may be more toxic," wrote lead author of the research, Joachim Heinrich, Ph.D., of the German Research Center for Environment and Health at the Institute of Epidemiology, in Munich.

"Our findings provide strong evidence for the adverse effects of traffic-related air pollutants on atopic diseases as well as on allergic sensitization," wrote Dr. Heinrich. The results appeared in the second issue for June of the American Thoracic Society's *American Journal of Respiratory and Critical Care Medicine*.

The study examined nearly 2,900 children at age four and more than 3,000 at age six to determine their rates of doctor-diagnosed asthma and/or allergy with relation to long-term exposure to traffic-related pollution.

Both the four-year-old and six-year-old groups of children came from prospective cohort studies and were enrolled at birth in the metropolitan Munich area. Their exposure to traffic pollutants was calculated as a function of the distance of their homes from major roads at birth and at

two, three and six years of age. Parents were given questionnaires about their child's respiratory diagnoses and symptoms, and their children were assessed for asthma, wheezing, sneezing and eczema. At six years of age, the children were tested for food allergies. Air was tested for particulate matter (e.g., soot) and nitrogen dioxide (NO₂) at each of forty identified points near high-traffic areas once each season between March 1999 and July 2000.

After controlling for such individual characteristics as parental allergies, pet ownership, and number of siblings, researchers found significant positive associations between distance to the nearest road and asthmatic bronchitis, hay fever, eczema and allergic sensitizations. They also found a distant-dependent relationship between proximity to the road and risk of allergic sensitization, with those living closest to major roads having a nearly 50 percent greater risk of allergic sensitization.

Previous studies have found that pollutants and allergic sensitization are linked, but using distance from major roads as a proxy for pollutant exposure has been confused by the socioeconomic factors that are often closely linked to such locales. However, in Munich, as with other older European cities, the roads and buildings are structured so that economic advantages are not necessarily correlated with living further from the main thoroughfares. In this study, it was possible to determine that economic factors were not a confounding variable in the analysis, but there was a clear difference in the children's allergic development with relation to their proximity to a road.

"We consistently found strong associations between the distance to the nearest main road and the allergic disease outcomes," wrote Dr. Heinrich. "Children living closer than 50 meters to a busy street had the highest probability of getting allergic symptoms, compared to children living further away."

Source: American Thoracic Society

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