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Exposure to air pollution in the first year of life increases risk for allergies

Canadian CHILd Study sheds new light on childhood risk of developing allergies

New research from the Canadian Healthy Infant Longitudinal Development (CHILd) study shows that exposure to outdoor air pollution during the first year of life increases the risk of developing allergies to food, mould, pets and pests.

The study, published in the journal *Environmental Health Perspectives*, showed that the sensitivity to allergens was associated with exposure to traffic-related air pollution during infancy.

“With the increasing rates of allergies amongst children in Canada and elsewhere, we were interested in determining if air pollution from traffic might be partially responsible,” said Michael Brauer, the study’s senior author and a professor in the School of Population and Public Health at the University of British Columbia. “This is the first study to find a link between air pollution and measured allergic sensitization during the first year.”

While infants exposed to air pollution were at greater risk, researchers did not find a link between mothers exposed to air pollution during pregnancy and allergy risk in their children. Vancouver had the largest proportion of children to develop sensitivity to allergens (23.5 per cent), compared to Toronto and Edmonton (17 per cent each), and Manitoba (9 per cent). The study also found that children who live with furry pets and no attached garage were more likely to have no sensitivity to allergens.

“Understanding which environmental exposures in early life affect the development of allergies can help tailor preventative measures for children,” said Hind Sbihi, a PhD candidate at UBC and first author of the study. “We also found that children who attended daycare or with older siblings in the household were less likely to develop allergic sensitization, suggesting that exposure to other children can be protective.”

Background:

The CHILd Study, funded by AllerGen NCE and the Canadian Institutes of Health Research (CIHR), involves more than 3,500 families and their infants across Canada who are being closely monitored to determine how genetic and a wide range of environmental factors contribute to health outcomes, especially with regard to allergies and asthma.

The researchers used data from 2,477 children and assessed the children with skin allergy testing at approximately one year of age. They were tested for sensitivity to ten allergens, including cat, dog, dust mites, cockroach, fungus, milk, egg, soy and peanut. Of the participants, 16 per cent of infants were sensitive to at least one of the tested allergens; 12.5 per cent were sensitive to a food allergen; and 5.3 per cent were sensitive to an inhalant allergen.

Exposure to traffic-related air pollution was assessed by estimating nitrogen dioxide levels at each child's home address. The researchers also evaluated the time each child spent away from home, including daycare attendance, and the use/type of the home's ventilation system.

About AllerGen NCE

[AllerGen NCE Inc.](http://allergen-nce.ca), the Allergy, Genes and Environment Network (est. 2004), is a national research network dedicated to improving the quality of life of people suffering from allergic and related immune diseases. Funded by Industry Canada through the federal Networks of Centres of Excellence (NCE) Program, the Network is hosted at McMaster University in Hamilton. Visit <http://allergen-nce.ca> for more information.

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