

Prenatal and early life exposure to multiple air pollutants increases odds of toddler allergies

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A new article in *Annals of Allergy, Asthma and Immunology*, the scientific journal of the American College of Allergy, Asthma and

Immunology (ACAAI) shows a significant association between multiple prenatal and early life exposures to indoor pollutants and the degree of allergic sensitivity in 2-year-olds.

"Because most children are exposed to more than one [pollutant](#) or allergen, we examined the relationship between multiple exposures and allergic sensitizations at 2 years of age," says Mallory Gallant, MSc, lead author of the study. "We examined [exposure](#) to dogs, cats, air fresheners, candles, mold, environmental tobacco smoke (ETS) and carpet, all of which have been associated with childhood allergies. Of the exposures we measured, prenatal exposure to candles, 6-month exposure to cats and 2-year exposure to ETS significantly increased the chance of a positive skin prick test (SPT) at 2 years of age."

108 [mother-child pairs](#) were followed from birth to 2 years of age. Exposure to [air fresheners](#), candles, mold, cats, dogs, carpet and environmental tobacco smoke (ETS) during the prenatal, 6-month, 1-year, and 2-year timepoints were obtained. A SPT was performed on both the mother and the 2-year-old child to measure allergic sensitivity. Allergic sensitization means that a person has had (or may have had given the possibilities for false positives) an allergic type immune response to a substance. But it does not necessarily mean that the substance causes them problems.

"The increase in the average amount of time indoors means there is an increased risk of harmful health outcomes related to exposure to indoor air pollutants," says allergist Anne K. Ellis, MD, study author, and member of the ACAAI Environmental Allergy Committee.

"Additionally, children breathe more frequently per minute than adults, and mostly breathe through their mouths. These differences could allow for air pollutants to penetrate more deeply into the lungs and at higher concentrations, making children more vulnerable to air pollutants."

Another goal of the study was to evaluate the effect of multiple exposures on allergic outcomes at 2 years of age. The study found that children with a positive SPT at 2 years of age had significantly more exposures prenatally, at the 1-year and 2-year time points compared to children with a negative SPT. As the number of indoor air polluting exposures increased, the percentage of [children](#) with a positive SPT increased. Dr. Ellis says, "When considered together, the findings suggest that the effect of multiple exposures may contribute more to allergy development than one single exposure."

More information: Mallory J. Gallant et al. Prenatal and early life exposure to indoor air-polluting factors and allergic sensitization at 2 years of age, *Annals of Allergy, Asthma & Immunology* (2019). [DOI: 10.1016/j.anai.2019.11.019](https://doi.org/10.1016/j.anai.2019.11.019)

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