

fat. In addition, there was a significant dose-response association between the number of positive SPT results and prevalence of short sleep duration (lowest tertile) ( $P_{\text{trend}} = 1 \times 10^{-3}$ ).

**CONCLUSIONS.** In this sample of relatively lean rural Chinese adolescents, short sleep duration was associated with increasing risk of sensitization to food allergens and aeroallergens independent of percentage body fat.

**REVIEWER COMMENTS.** A methodologic concern for this study regards the possibility that allergic disease was interrupting sleep, but the authors felt that the allergic sensitization was unlikely to be explained by this confounder because the majority of them were clinically asymptomatic, and the effect persisted even when those with allergic or sleep disorders were excluded from the analysis. This intriguing and previously unreported finding provides further evidence to suggest that immune function is affected by sleep deprivation, which is already known to increase susceptibility to infection. Sleep duration is far more modifiable than many other risk factors for allergic disease and also has other undisputed benefits for overall health, and so this finding has substantial clinical and public health importance. Longitudinal studies are needed to further determine the temporal and causal relationships. In the meantime, get a good night's sleep!

URL: [www.pediatrics.org/cgi/doi/10.1542/peds.2011-2107L](http://www.pediatrics.org/cgi/doi/10.1542/peds.2011-2107L)

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## ALLERGENS AND ENVIRONMENTAL EXPOSURES

### Opposing Effects of Cat and Dog Ownership and Allergic Sensitization on Eczema in an Atopic Birth Cohort

Epstein TG, Bernstein DI, Levin L, et al. *J Pediatr.* 2011;158(2):265-271

**PURPOSE OF THE STUDY.** To evaluate the effect of environmental exposures and allergic sensitization on the risk of developing eczema at 4 years of age.

**STUDY POPULATION.** This was a birth-cohort study that enrolled newborns in the Cincinnati metropolitan area born between 2001 and 2003. Enrolled infants had at least 1 parent with symptoms of asthma, allergic rhinitis, or eczema.

**METHODS.** On a yearly basis from the ages of 1 to 4 years, children underwent a physical examination, a clinician's assessment, and a skin-prick test (SPT) to 15 aeroallergens plus cow's milk and hen's egg. Parents completed an in-person validated survey at these times to assess environmental exposures and the parent's perception of

their child's eczema. A home environmental assessment and collection of house dust samples were performed before 1 year of age.

**RESULTS.** Of the 636 children analyzed, 14% had eczema. The most significant predictors of eczema at age 4 were having a parent with eczema ( $P = .03$ ), a positive SPT result to egg at 1 year of age ( $P < .001$ ), and a positive SPT result to elm tree pollen at ages 1, 2, or 3 years ( $P = .03$ ). Those who owned a dog before the age of 1 and were SPT-positive to dog at age 1, 2, or 3 did not have an increased risk for eczema at age 4, whereas those who did not own a dog before age 1 and were SPT-positive to dog at age 1, 2, or 3 had an almost fourfold increased risk of eczema at age 4 ( $P = .002$ ). In contrast, children who lived with cats before age 1 and were SPT-positive to cat at ages 1, 2, and 3 years were 13 times more likely to have eczema at age 4 than those who were SPT-negative to cat ( $P < .001$ ).

**CONCLUSIONS.** A history of parental eczema, SPT positivity to egg at 1 year of age, and SPT positivity to elm tree pollen at ages 1, 2, or 3 years were all found to significantly increase the risk of development of eczema at age 4 years. Dog ownership before 1 year of age significantly reduced the risk of eczema at age 4 years among children sensitized to dog. In contrast, cat ownership before 1 year of age significantly increased the risk of eczema at age 4 among cat-sensitized children.

**REVIEWER COMMENTS.** The prospective design of the study is a strength; however, recall bias and the relatively small total number of children with eczema and either cat or dog ownership are limitations. The protective influence of dog ownership on the development of eczema has been reported previously and deserves further investigation into the exact effects of dog antigens on the immune system. Conflicting data regarding the effects of cat ownership on the development of atopy have been reported in other study reports, and larger studies need to be performed before advice regarding pet ownership is given to parents on a routine clinical basis.

URL: [www.pediatrics.org/cgi/doi/10.1542/peds.2011-2107M](http://www.pediatrics.org/cgi/doi/10.1542/peds.2011-2107M)

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### Cockroach Exposure Independent of Sensitization Status and Association With Hospitalization for Asthma in Inner-City Children

Rabito FA, Carlson J, Holt EW, Iqbal S, James MA. *Ann Allergy Asthma Immunol.* 2011;106(2):103-109

**PURPOSE OF THE STUDY.** To examine the relationship between house dust mite, cockroach exposures and sensitization,

**Opposing Effects of Cat and Dog Ownership and Allergic Sensitization on Eczema in an Atopic Birth Cohort**

Erin E. Clarke and J. Andrew Bird

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