

PEDIATRICS®

OFFICIAL JOURNAL OF THE AMERICAN ACADEMY OF PEDIATRICS

Vitamin D Levels and Food and Environmental Allergies in the United States: Results From the National Health and Nutrition Examination Survey 2005 –2006

Mitchell R. Lester

Pediatrics 2011;128;S98

DOI: 10.1542/peds.2011-2107I

The online version of this article, along with updated information and services, is
located on the World Wide Web at:

http://pediatrics.aappublications.org/content/128/Supplement_3/S98.1.full.html

PEDIATRICS is the official journal of the American Academy of Pediatrics. A monthly publication, it has been published continuously since 1948. PEDIATRICS is owned, published, and trademarked by the American Academy of Pediatrics, 141 Northwest Point Boulevard, Elk Grove Village, Illinois, 60007. Copyright © 2011 by the American Academy of Pediatrics. All rights reserved. Print ISSN: 0031-4005. Online ISSN: 1098-4275.

American Academy of Pediatrics

DEDICATED TO THE HEALTH OF ALL CHILDREN™



REVIEWER COMMENTS. A weakness of this study is that the incidence of atopic disease itself was based solely on self-report. As the data are reported, being born prematurely and at VLBW places an infant at a lower risk of sensitization to allergen as a young adult. However, the results do not support a decreased risk of allergy (sensitization plus symptoms with exposure).

URL: www.pediatrics.org/cgi/doi/10.1542/peds.2011-2107H

Mitchell R. Lester, MD
Norwalk, CT

Vitamin D Levels and Food and Environmental Allergies in the United States: Results From the National Health and Nutrition Examination Survey 2005–2006

Sharief S, Jariwala S, Kumar J, Muntner P, Melamed ML. *J Allergy Clin Immunol*. 2011;127(5):1195–1202

PURPOSE OF THE STUDY. To examine the relationship between serum 25-hydroxyvitamin D (25[OH]D) levels and the prevalence of food and environmental allergies.

STUDY POPULATION. The study used the National Health and Nutrition Examination Survey 2005–2006, composed of a population of civilian noninstitutionalized US residents, which deliberately oversampled non-Hispanic black and Mexican American people to obtain accurate prevalence data in those subpopulations. All participants 1 year of age or older with available 25(OH)D levels and allergy-test results were included. Included in the final analysis were 3136 children and 3454 adults (>21 years old).

METHODS. Information about vitamin D supplements, milk intake in the previous month (daily, less than daily but more than weekly, and once weekly or less), and television, computer, and videogame time (“screen time”) (none, <2 hours/day, 2–4 hours/day, and >4 hours/day) was collected. Allergy was determined by a questionnaire, and serum was obtained for total immunoglobulin E (IgE) and for specific IgE to dust mites, cat, dog, *Alternaria*, peanut, egg, and milk. Subjects 6 years of age or older also had ImmunoCAP (Phadia, Uppsala, Sweden) levels measured for German cockroach, selected tree, grass, and weed pollens, and shrimp. Allergy was defined as any positive IgE test result (≥ 0.35 kU/L) or a total IgE level in the top quintile (>191 kU/L). Seasonal and perennial allergies were defined as a positive ImmunoCAP level to a pollen or perennial allergen, respectively. 25(OH)D levels were classified as deficient (<15 ng/mL), insufficient (15–29 ng/mL), or sufficient (≥ 30 ng/mL).

RESULTS. Deficient 25(OH)D levels were associated with being non-Hispanic black or Mexican American, having a low socioeconomic status, >4 hours/day of screen

time, lower frequency of milk-drinking, and not taking vitamin D supplements. Children and adolescents deficient in 25(OH)D had a higher prevalence of sensitization to most individual allergens, to any allergen, and to any seasonal or perennial allergen than those with insufficient or sufficient levels. The same trends were not seen in adults. Questionnaire data also revealed an association between deficient and insufficient 25(OH)D levels and prevalence of allergy symptoms in general but not to specific symptoms in children and adolescents.

CONCLUSIONS. Vitamin D deficiency is associated with a higher rate of allergic sensitization and self-reported allergy in children and adolescents.

REVIEWER COMMENTS. Results of this study support previous ones in which low vitamin D levels were implicated in higher rates of allergic disease. The noncalcemic effects of vitamin D, including its immunomodulatory effects on antigen-presenting cells and effector cells, are growing areas of research, but specific mechanisms are not yet known. “Got milk?” Although there are no data as to whether vitamin D supplementation or naturally acquired higher 25(OH)D levels can reverse allergic sensitization, these results provide 1 more reason for children to turn off the video screen and go outside to play.

URL: www.pediatrics.org/cgi/doi/10.1542/peds.2011-2107I

Mitchell R. Lester, MD
Norwalk, CT

Nutrients and Foods for the Primary Prevention of Asthma and Allergy: Systematic Review and Meta-analysis

Nurmatov U, Devereux G, Sheikh A. *J Allergy Clin Immunol*. 2011;127(3):724–733

PURPOSE OF THE STUDY. Results of several individual studies have suggested an association between specific nutrient and food intake and the development of atopic disease. This study aimed to systematically review and analyze the published literature.

STUDY POPULATION. This was a systematic review and meta-analysis of published literature. Reviewed studies included pregnant women, infants, and children younger than 16 years.

METHODS. Eleven databases were systematically reviewed for studies that investigated the role of nutrients and foods for the primary prevention of atopic disorders in children.

RESULTS. There were 62 eligible reports identified from cohort, case-control, and cross-sectional studies. Serum vitamin A levels were lower in children with asthma compared with controls (odds ratio [OR]: 0.25 [95% confidence interval (CI): 0.1–0.4]). High maternal dietary

**Vitamin D Levels and Food and Environmental Allergies in the United States:
Results From the National Health and Nutrition Examination Survey 2005 –2006**

Mitchell R. Lester

Pediatrics 2011;128;S98

DOI: 10.1542/peds.2011-2107I

Updated Information & Services	including high resolution figures, can be found at: http://pediatrics.aappublications.org/content/128/Supplement_3/S98.1.full.html
Permissions & Licensing	Information about reproducing this article in parts (figures, tables) or in its entirety can be found online at: http://pediatrics.aappublications.org/site/misc/Permissions.xhtml
Reprints	Information about ordering reprints can be found online: http://pediatrics.aappublications.org/site/misc/reprints.xhtml

PEDIATRICS is the official journal of the American Academy of Pediatrics. A monthly publication, it has been published continuously since 1948. PEDIATRICS is owned, published, and trademarked by the American Academy of Pediatrics, 141 Northwest Point Boulevard, Elk Grove Village, Illinois, 60007. Copyright © 2011 by the American Academy of Pediatrics. All rights reserved. Print ISSN: 0031-4005. Online ISSN: 1098-4275.

American Academy of Pediatrics

DEDICATED TO THE HEALTH OF ALL CHILDREN™

