Peanuts and LEAP Data

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The incidence of peanut allergy has increased in the last decade in Western countries, and it is the leading cause of fatal allergic reactions due to food in the United States. In the past, the American Academy of Pediatrics, Committee on Nutrition recommended that young infants at high risk for food allergy avoid allergenic foods. However, studies in recent years have found that elimination diets do not prevent the development of immunoglobulin E-mediated food allergy. In addition, cultures in which peanut is consumed regularly during infancy have substantially lower rates of peanut allergy than cultures where peanut introduction is delayed beyond the first year of age. The Learning Early about Peanut Allergy (LEAP) trial was designed to determine whether introducing peanuts into the diets of young infants at high risk for peanut allergy would prevent the development of an allergy to this food.

The LEAP trial was a randomized, open-label, controlled clinical trial carried out in the United Kingdom. Infants from 4 to 10 months of age with a history of severe eczema, egg allergy, or both were eligible to participate. A total of 640 infants were enrolled and stratified into 2 groups based on the results of skin tests for peanut allergy. Cohort 1 (542 infants) had no wheal and cohort 2 (98 infants) had a 1- to 4-mm wheal after the skin test. Infants in each cohort were randomized to a peanut consumption or avoidance group. The participants randomized to the peanut consumption group initially had an open-label oral food challenge. If they had a reaction, they were told to avoid peanuts and were included in the intention-to-treat analysis. Infants randomized to the consumption group were fed at least 6 g of peanut protein per week, given during at least 3 different meals, until they were 60 months old.

At age 60 months, all participants had an oral food challenge with peanut. In the analysis for cohort 1 (negative skin test), 13.7% of the peanut avoidance group and 1.9% of the peanut consumption group were allergic to peanuts ($P < .001$), representing an 86.1% relative risk reduction in peanut allergy prevalence. In the analysis for cohort 2 (positive skin test), 35.3% of the avoidance group and 10.6% of the consumption group were allergic to peanuts ($P = .004$), representing a 70.0% relative risk reduction. There were no significant differences in hospitalizations or serious adverse events between the consumption and avoidance groups, and there were no fatalities.

The LEAP trial showed that the early introduction and continued consumption of peanut in infants at risk for food allergies was associated with a decreased likelihood of developing a peanut allergy when compared to avoidance of peanuts during infancy and early childhood. In a separate analysis of the LEAP trial data, there was no significant difference between the peanut consumption and peanut avoidance groups in terms of duration of breastfeeding, weight, height, body mass index, or total energy intakes.

Randomized Trial of Peanut Consumption in Infants at Risk for Peanut Allergy. Du Toit G, Roberts G, Sayre PH, et al. *N Engl J Med.* 2015;372(9):803-813

Effect of Avoidance on Peanut Allergy after Early Peanut Consumption. Du Toit G, Sayre PH, Roberts G, et al. *N Engl J Med.* 2016;374(15):1435-1443

Impact of Peanut Consumption in the LEAP Study: Feasibility, Growth, and Nutrition. Feeney M, Du Toit G, Roberts G, et al. *J Allergy Clin Immunol.* 2016;138(4):1108-1118

Early Consumption of Peanuts in Infancy Is Associated with a Low Prevalence of Peanut Allergy. Du Toit G, Katz Y, Sasieni P, et al. *J Allergy Clin Immunol.* 2008;122(5):984-991

In an extension of the LEAP trial called the Persistence of Oral Tolerance to Peanut (LEAP-On) study, LEAP trial participants were told to avoid peanuts for 12 months. Children who had been randomized to the consumption group in the LEAP trial continued to have a significantly lower prevalence of peanut allergy compared to children randomized to the avoidance group. Although there was an increase in new peanut allergies in both groups, the rate of increase was the same (1.1%). There was also no significant difference in the rates of peanut allergy from the beginning to the end of the LEAP-On study, showing that the early introduction of peanuts can lead to stable tolerance of peanuts after 12 months of avoidance.

The data published by the LEAP Study Team demonstrated that peanut ingestion from early infancy is a safe and effective strategy for preventing peanut allergy in at-risk infants. Infants with risk factors of severe eczema or egg allergy should be identified as early as possible and offered skin prick testing to peanut, with subsequent early introduction of peanut if not already highly sensitized. The National Institute of Allergy and Infectious Diseases has published an addendum to their 2010 "Guidelines for the Diagnosis and Management of Food Allergy" entitled "Addendum Guideline for the Prevention of Peanut Allergy in the United States," which gives guidance for early introduction of peanut, based on the significant findings from the LEAP trial.

COMMENT: The LEAP study was a truly innovative project. It was based on the strategic observation that the rates of peanut allergy were lower in children in Israel compared to the United Kingdom, although early introduction of peanuts during the first year after birth was common in Israel and recommendations in the United Kingdom stressed delayed introduction until age 3 years, a recommendation also endorsed in the United States. Through sound science, an initial study compared the rates of peanut allergies in United Kingdom and Israeli Jewish children who were believed to have similar genetic backgrounds. The findings questioned past avoidance strategies and whether early introduction of peanuts may be protective. This observation and the subsequent randomized, controlled trial revealed the results that Drs Holmes and Lehman have described. These studies demonstrate the importance of continually questioning past dogma and the excitement of our field of medicine in lifelong learning and creating new evidence to provide the best recommendations and highest quality of care for our patients. What a great field in which we work!

– Janet Serwint, MD
Associate Editor, *In Brief*

Parent Resources from the AAP at HealthyChildren.org

- Peanut Allergies: What You Should Know About the Latest Research: https://www.healthychildren.org/English/health-issues/conditions/allergies-asthma/Pages/Peanut-Allergies-What-You-Should-Know-About-the-Latest-Research.aspx
- When can I start giving my baby peanut butter?: https://www.healthychildren.org/English/tips-tools/ask-the-pediatrician/Pages/When-can-I-start-giving-my-baby-peanut-butter.aspx

For a comprehensive library of AAP parent handouts, please go to the *Pediatric Patient Education* site at http://patiented.aap.org.

ANSWER KEY FOR AUGUST 2017 PEDIATRICS IN REVIEW

Nutritional Considerations in Pediatric Chronic Disease: 1. C; 2. E; 3. E; 4. A; 5. A.
The Pediatrician's Role in Encouraging Exclusive Breastfeeding: 1. B; 2. C; 3. A; 4. C; 5. B.
Hypertension in Children and Adolescents: 1. B; 2. B; 3. C; 4. A; 5. E.

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