



Dietary interventions to prevent atopic disease: Updated recommendations

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Recommendations for allergy prevention through early infant dietary intervention continue to evolve.

An updated AAP clinical report from the Committee on Nutrition and Section on Allergy and Immunology provides some new recommendations based on reviews of expert guidelines, systematic reviews, meta-analyses and studies published since the AAP's 2008 report was issued.

The updated report, *The Effects of Early Nutritional Interventions on the Development of Atopic Disease in Infants and Children: The Role of Maternal Dietary Restriction, Breastfeeding, Hydrolyzed Formulas, and Timing of Introduction of Allergenic Complementary Foods*, is available at <https://doi.org/10.1542/peds.2019-0281> and will be published in the April issue of *Pediatrics*.

Evolution of recommendations

In 2000, an AAP policy suggested that the approach to allergy prevention in infants at high risk of allergy based on family history of atopic disease could include use of hydrolyzed infant formulas; maternal avoidance of peanut and other allergenic foods; and delayed introduction of milk, egg, peanut, nuts and fish beyond age 1 year. Those recommendations were based on limited data. Over the subsequent eight years, mounting evidence suggested that delaying introduction of allergens was *not* preventive.

The 2008 clinical report replaced the prior recommendations with more tentative comments about the impact of hydrolyzed formulas and made no recommendations on restricting food allergens in the maternal diet during pregnancy or lactation. The report presented a comprehensive review of the infant diet including breastfeeding and the timing of introduction of solid foods on outcomes of numerous atopic conditions, including asthma, atopic dermatitis and food allergy. Since then, accumulating evidence has further informed the field, resulting in the following new conclusions and recommendations.

Maternal dietary restrictions

There is lack of evidence to suggest maternal dietary restrictions during pregnancy or lactation reduce the risk of atopic disease. The report notes that one systematic review found that a maternal diet rich in fruits, vegetables, fish and foods containing vitamin D and Mediterranean dietary patterns were associated with lower rates of atopic disease in children.

Breastfeeding

The table below summarizes the evidence on the role of breastfeeding on atopic disease and the impact of hydrolyzed formula if breastfeeding cannot be accomplished. A beneficial impact of breastfeeding is evident. Several conclusions differ from ones presented in 2008, due to new studies and meta-analyses incorporating them. Among them are:

- Any duration of breastfeeding beyond three to four months protects against wheezing in the first two years.
- Some evidence reveals that longer duration of *any* breastfeeding protects against asthma even beyond age 5 years.

Early introduction of peanut



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One significant change in the recommendations involves the timing of peanut introduction. While the new clinical report still concludes that there is no evidence that delaying introduction of allergens beyond 4 to 6 months of age prevents atopic disease, there is evidence to support early introduction of infant-safe forms of peanut.

The AAP endorsed a report from a National Institute of Allergy and Infectious Diseases expert panel that made recommendations heavily based on the Learning Early About Peanut (LEAP) allergy trial and other studies (<http://bit.ly/2CPqfki>).

Those recommendations focus on a high-risk population - infants with severe atopic dermatitis and/or egg allergy - who are advised to introduce infant-safe forms of peanut as early as 4-6 months, in specified amounts, with consideration of pre-testing to rule out allergy. The guidelines recommend that infants with mild to moderate eczema be introduced to infant-safe peanut-containing foods as early as 6 months of age, and those without food allergy or risk factors do so when age appropriate and depending on family preferences, i.e., after 6 months of age if exclusively breastfeeding.

The theory is that eczematous skin can be a portal of exposure that triggers allergic responses; in contrast, oral exposure induces tolerance. Hence, delayed peanut ingestion may result, for these infants, in increasing risks of sensitization with time. Additional details about early introduction of peanut are available at <http://bit.ly/2UFB5Cq> and in the clinical report.

More data are needed to understand the impact of the timing of introduction of other foods such as egg on food allergy outcomes as limited evidence is less clear compared to peanut.



Breastfeeding, hydrolyzed formulas and timing of introduction of allergenic solid foods to prevent atopic disease

Conclusions in 2019 clinical report*	Differs from 2008 report?
Exclusive breastfeeding for the first 3-4 months decreases eczema in the first 2 years.	No
No short- or long-term advantages for exclusive breastfeeding beyond 3-4 months for prevention of atopic disease.	No
Any breastfeeding beyond 3-4 months protects against wheezing in the first 2 years.	Yes. Report concluded that exclusive breastfeeding for at least three months protected against wheezing in early life.
Some evidence that longer duration of any breastfeeding, compared to less, protects against asthma past age 5 years.	Yes
No conclusions can be made on duration of breastfeeding and impact on specific food allergies.	No
There is lack of evidence that partially or extensively hydrolyzed formula prevents atopic disease.	Yes. Prior conclusion was modest evidence of delay or prevention of atopic dermatitis.
There is evidence that early introduction of infant-safe forms of peanut reduces the risk of peanut allergy.	Yes
There is no evidence that delaying the introduction of allergenic foods prevents atopic disease.	No

**The Effects of Early Nutritional Interventions on the Development of Atopic Disease in Infants and Children: The Role of Maternal Dietary Restriction, Breastfeeding, Hydrolyzed Formulas, and Timing of Introduction of Allergenic Complementary Foods*

Drs. Sicherer and Greer are the lead authors of the clinical report. Dr. Sicherer is a former chair of the Section on Allergy and Immunology Executive Committee, and Dr. Greer is a former chair of the Committee on Nutrition.