

Enquiry About Tolerance (EAT)

A Synopsis of Study Parameters, Outcomes, and Key Takeaways

Research Question: The study aims to determine whether introducing certain foods (peanut, cooked egg, cow's milk, sesame, white fish, wheat) early in a child's diet, along with continued breastfeeding, could prevent them from developing food allergies.

Funding: Funded by The Food Standards Agency (independent government department working across England, Wales, and Northern Ireland to protect public health and consumers' wider interests in food) and Medical Research Council (division of UK Research and Innovation, an independent research organization funded through the UK's Science Budget by the Department for Business, Energy and Industrial Strategy)

Year Study Began: Enrollment from November, 2009 to July, 2012

Year Published: March, 2016 at NEJM.org

Study Type: Randomized controlled trial at a single site in the UK

Who Was Studied: Exclusively breast-fed infants 3 months of age in the general population of England and Wales. Participants were randomly assigned to the standard-introduction or early-introduction groups. Overseen by the Trial Steering Committee, which has an independent chair (Professor Graham Roberts) and an Independent Data Monitoring Committee

Who Was Excluded: Participants who didn't meet the minimum allergen dosage protocols (see below)

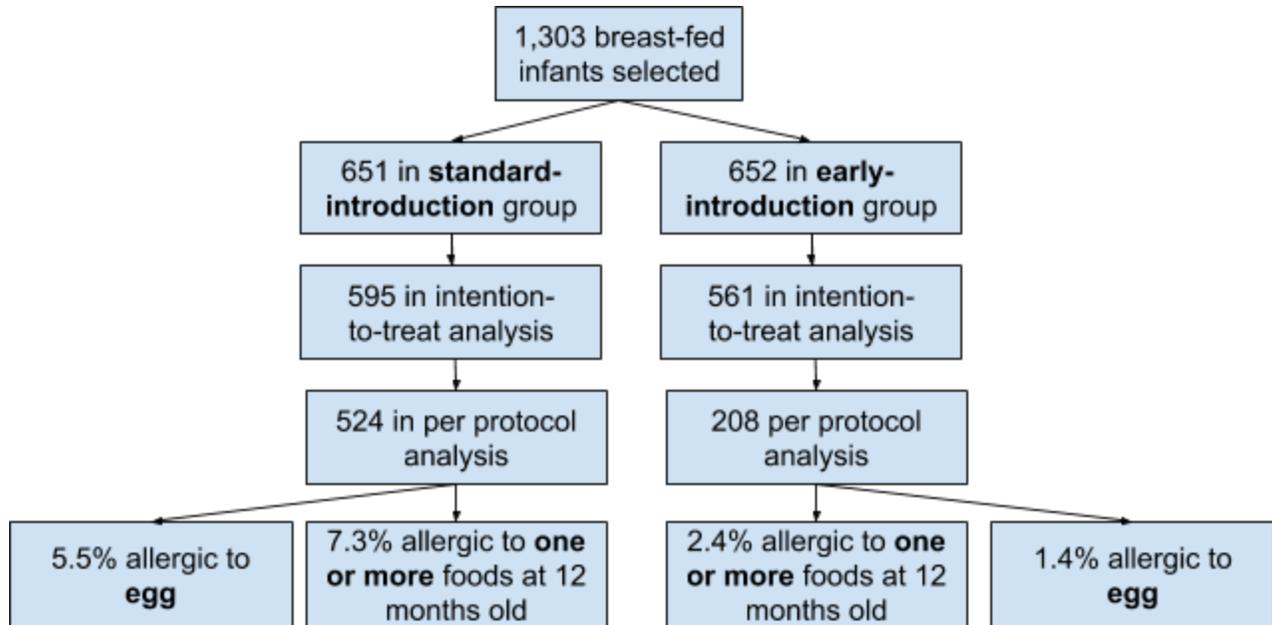
How Many Patients: 1,303 breast-fed infants from the general population. 595 in standard-introduction group and 567 in the early-introduction group.

Study Overview

- Standard-introduction group: exclusively breast-fed to 6 months of age. After 6 months, the consumption of allergenic foods was allowed according to parental discretion
- Early-introduction group: underwent baseline skin-prick testing and, if positive, an oral food challenge totaling 2g of protein of that food. Consumed at least 5 of the foods, for at least 5 weeks, between 3 and 6 months of age, and at least 75% of recommended dose (i.e. 3g/week)
- Breastfeeding continued in both groups to at least 5 months of age
- Measurement taken via online questionnaire every month to 1 year of age, and then every 3 months until the child was 3 years of age. Parents in early-introduction group also maintained a weekly diary to record the quantity of the 6 allergens consumed.
- In both groups, peanut-protein levels were measured in dust collected from the participant's bed at 3 months of age (before consumption of allergenic foods) and again at 12 months of age as an independent measure of adherence to the dosing protocol.

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Dosing: 4g protein per week (split into 2 portions and given twice weekly)

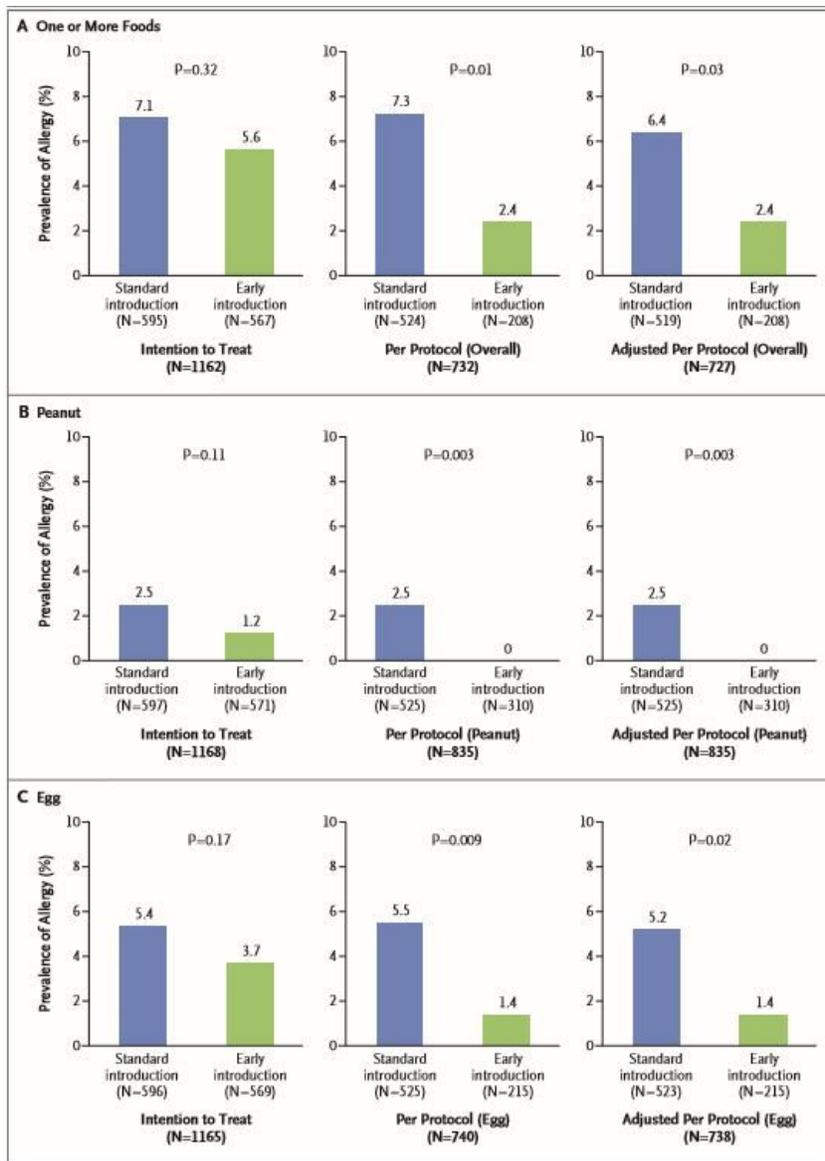
- Peanut: 3 teaspoons smooth peanut butter (17g)
- Egg: 1 small or $\frac{2}{3}$ medium cooked egg (30g)
- Cow's Milk: 2 small pots fromage frais (40-60g each) or 8 tablespoons whole plain greek-style yogurt (120g)
- White Fish: 2 fish sticks with breadcrumb coating removed or $\frac{1}{4}$ fillet of white fish (25g)
- Sesame: 3 teaspoons tahini paste (17g)
- Wheat: 2 wheat-based biscuit cereal (40g)

Results:

- Food allergy developed in 74 participants. A diagnosis of any food allergy was significantly associated with the presence of eczema at enrollment, non-white race, and having siblings.
- 92.9% of the standard-introduction participants adhered to the dosing protocol. Only 42.8% of the participants in the early-introduction group adhered to the protocol.
- Primary factors accounted for non-adherence included: non-white race, parent perceived symptoms of allergen sensitivity in the child, reduced maternal quality of life, and presence of eczema in the child at enrollment.
- The mean weekly consumption of 2g of peanut or 2g of egg-white protein was associated with a significantly lower prevalence of these respective allergies than was less consumption.
- The early introduction of all six foods was not easily achieved but was safe (no cases of anaphylaxis with introducing foods at home in the early-introduction group).

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Criticisms and Limitations: The main weakness is associated with the inherent limitation of self-reporting and ensuring each participant ingested the minimum allergen dose required. The study didn't include a geographically representative global sample of participants and did not incorporate risk factors in the infant selection process.

Summary and Implications: In the per-protocol analysis, there was a significant 67% lower relative risk of food allergy overall in the early-introduction group. The rates of food allergies other than peanut or egg were too low to individually show any effects. Nevertheless, at 3 years of age, the average relative risk of a positive skin-prick test to the 6 individual foods was 79% lower in the early-introduction group.



Making early and sustained allergen introduction easy

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For more information, please visit [ReadySetFood.com](https://www.readyssetfood.com)

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- Food amount & duration matter: The efficacy of intervention was related to the *duration* of consumption of the specific food and the *quantity* of the food consumed between 3 and 6 months of age.
- Poor compliance: Adherence was a significant challenge for the early-introduction group. In particular, egg (41.3%), sesame (50.7%), fish (60%), and peanut (61.9%) were difficult for parents to administer consistently and at adequate dosage levels.

References:

- 1) <http://www.eatstudy.co.uk/>
- 2) <https://www.food.gov.uk>
- 3) <https://mrc.ukri.org/>
- 4) <https://www.ukri.org/about-us/>