Effect of Avoidance on Peanut Allergy after Early Peanut Consumption

Citation: New England Journal of Medicine, April 2016, 374/15, pp. 1435-1443

Author(s): Toit G.D. et al.

Aim: In a randomized trial, the early introduction of peanuts in infants at high risk for allergy was shown to prevent peanut allergy. In this follow-up study, we investigated whether the rate of peanut allergy remained low after 12 months of peanut avoidance among participants who had consumed peanuts during the primary trial, as compared with those who had avoided peanuts.

Methods: At the end of the primary trial, we instructed all the participants to avoid peanuts for 12 months. The primary outcome was the percentage of participants with peanut allergy at the end of the 12-month period, when the participants were 72 months of age.

Results: 550 participants had complete primary-outcome data. Peanut allergy at 72 months was significantly more prevalent among participants in the peanut-avoidance group than among those in the peanut-consumption group (18.6% [52 of 280 participants] vs. 4.8% [13 of 270]). Three new cases of allergy developed in each group, but after 12 months of avoidance there was no significant increase in the prevalence of allergy among participants in the consumption group. Fewer participants in the peanut-consumption group than in the peanut-avoidance group had high levels of Ara h2 (a component of peanut protein)-specific IgE and peanut-specific IgE; in addition, participants in the peanut-consumption group continued to have a higher level of peanut-specific IgG4 and a higher peanut-specific IgG4:IgE ratio.

Conclusions: Among children at high risk for allergy in whom peanuts had been introduced in the first year of life and continued until 5 years of age, a 12-month period of peanut avoidance was not associated with an increase in the prevalence of peanut allergy. Longer term effects are not known.

Full Text: Available from Ovid in New England Journal of Medicine

The economic effect and outcome of delaying oral food challenges.

Citation: Annals of Allergy, Asthma & Immunology, 2016, 116/5, pp. 420-424

Author(s): Couch, Christopher, Franxman, Tim, Greenhawt, Matthew

Aim: To assess the economic effect and outcome of delaying oral food challenges (OFC).

Methods: A retrospective analysis was performed for peanut, egg, and milk OFCs conducted between 2001 and 2012 at a tertiary food allergy referral center. Delayed OFC was defined as greater than 12 months from the time the sIgE level became less than 2 kUA/L. Time to OFC was explored in association with skin prick test result (wheal size), OFC outcome, and the economic effect of delay.

Results: Of 319 challenges, 173 OFCs were delayed (54.2%) by a mean time of 35.5 months (range, 13–123 months) vs a mean time of 4.2 months in the 146 challenges that were not delayed. The overall OFC passage rate was 89.9%. There was no association between delayed OFC and history of anaphylaxis, type of allergen, age at OFC, or challenge outcome. Delay in OFC was associated with an estimated mean economic cost of $12,203 per patient ($4,184 per 12 months) and $1,951,487 total (total delay, 5,597 months) in this population.

Conclusion: Despite a 50% negative predictive value, more than 50% of OFCs were delayed in this population by a mean time of nearly 3 years. Delaying OFC is associated with increased costs, and quality improvement is needed to help decrease time to OFC and reduce the economic burden of food allergy on families and the health care system.
Tolerance of a high-protein baked-egg product in egg-allergic children.

**Citation:** Annals of Allergy, Asthma & Immunology, 2016, 116/5, pp. 415-419  
**Author(s):** Saifi, Maryam, Swamy, Nithya, Crain, Maria, Brown, L. Steven, Bird, John Andrew

**Aim:** To establish whether children with egg allergy would pass a baked-egg challenge to a larger amount of egg protein and the potential criteria for predicting the likelihood of baked-egg tolerance.

**Methods:** A chart review was conducted of all patients 6 months to 18 years of age with egg allergy who underwent oral baked-egg challenges at Children's Medical Center Dallas over a 2-year period. Challenges were conducted in the clinic with a 3.8-g baked-egg product.

**Results:** Fifty-nine of 94 patients (63%) tolerated the 3.8-g baked-egg product. The presence of asthma, EW skin prick test reactive wheal, and EW-specific IgE level correlated with baked-egg reactivity, whereas ovomucoid-specific IgE level did not.

**Conclusion:** Most subjects with egg allergy tolerated baked egg. This study is the first to use 3.8 g of EW protein for the challenges. The EW SPT wheal diameter and EW-specific IgE levels were the best predictors of baked-egg tolerance.

Anaphylaxis in children and adolescents: The European Anaphylaxis Registry.

**Citation:** The Journal of allergy and clinical immunology, Apr 2016, vol. 137, no. 4, p. 1128-1137  
**Author(s):** Grabenhenrich, Linus B et al.

**Aim:** We sought to characterize severe allergic reactions in terms of elicitors, symptoms, emergency treatment, and long-term management in European children and adolescents.

**Method:** The European Anaphylaxis Registry recorded details of anaphylaxis after referral for in-depth diagnosis and counseling to 1 of 90 tertiary allergy centers in 10 European countries. Between July 2007 and March 2015, anaphylaxis was identified in 1970 patients younger than 18 years. Most incidents occurred in private homes (46%) and outdoors (19%). One third of the patients had experienced anaphylaxis previously. Food items were the most frequent trigger (66%), followed by insect venom (19%). Cow's milk and hen's egg were prevalent elicitors in the first 2 years, hazelnut and cashew in preschool-aged children, and peanut at all ages. There was a continuous shift from food- to insect venom- and drug-induced anaphylaxis up to age 10 years, and there were few changes thereafter. Vomiting and cough were prevalent symptoms in the first decade of life, and subjective symptoms (nausea, throat tightness, and dizziness) were prevalent later in life. Thirty percent of cases were lay treated, of which 10% were treated with an epinephrine autoinjector.

**Conclusion:** The European Anaphylaxis Registry confirmed food as the major elicitor of anaphylaxis in children, specifically hen's egg, cow's milk, and nuts. Reactions to insect venom were seen more in young adulthood. Intensive care unit admissions and grade IV/fatal reactions were rare.

Early growth characteristics and the risk of reduced lung function and asthma: A meta-analysis of 25,000 children.

**Citation:** The Journal of allergy and clinical immunology, Apr 2016, vol. 137, no. 4, p. 1026-1035  
**Author(s):** den Dekker, Herman T et al.

**Aim:** Children born preterm or with a small size for gestational age are at increased risk for childhood asthma. We sought to assess the hypothesis that these associations are explained by reduced airway patency.

**Method:** We used individual participant data of 24,938 children from 24 birth cohorts to examine and meta-analyze the associations of gestational age, size for gestational age, and infant weight gain with childhood lung function and asthma (age range, 3.9-19.1 years). Second, we explored whether these lung function outcomes mediated the associations of early growth characteristics with childhood asthma.

**Results:** Children born with a younger gestational age had a lower FEV1, FEV1/forced vital capacity (FVC) ratio, and forced expiratory volume after exhaling 75% of vital capacity (FEF75), whereas those
born with a smaller size for gestational age at birth had a lower FEV1 but higher FEV1/FVC ratio. Greater infant weight gain was associated with higher FEV1 but lower FEV1/FVC ratio and FEF75 in childhood. All associations were present across the full range and independent of other early-life growth characteristics. Preterm birth, low birth weight, and greater infant weight gain were associated with an increased risk of childhood asthma.

**Conclusions:** Younger gestational age, smaller size for gestational age, and greater infant weight gain were across the full ranges associated with childhood lung function. These associations explain the risk of childhood asthma to a substantial extent.

**Prevention of food allergy** [review]

**Citation:** The Journal of allergy and clinical immunology, Apr 2016, vol. 137, no. 4, p. 998-1010

**Author(s):** du Toit, George, Tsakok, Teresa, Lack, Simon, Lack, Gideon

**Abstract:** The past few decades have witnessed an increase in the prevalence of IgE-mediated food allergy (FA). For prevention strategies to be effective, we need to understand the causative factors underpinning this rise. Genetic factors are clearly important in the development of FA, but given the dramatic increase in prevalence over a short period of human evolution, it is unlikely that FA arises through germline genetic changes alone. A plausible hypothesis is that 1 or more environmental exposures, or lack thereof, induce epigenetic changes that result in interruption of the default immunologic state of tolerance. Strategies for the prevention of FA might include primary prevention, which seeks to prevent the onset of IgE sensitization; secondary prevention, which seeks to interrupt the development of FA in IgE-sensitized children; and tertiary prevention, which seeks to reduce the expression of end-organ allergic disease in children with established FA. This review emphasizes the prevention of IgE-mediated FA through dietary manipulation, among other strategies; in particular, we focus on recent interventional studies in this field.

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