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# The natural history of peanut and egg allergy in children up to age 6 years in the HealthNuts population-based longitudinal study

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## Background


Prospectively collected data on the natural history of food allergy are lacking.

## Objective

We examined the natural history of egg and peanut allergy in children from age 1 to 6 years and assessed whether a skin prick test (SPT) result or other clinical factors at diagnosis are associated with the persistence or resolution of food allergy in early childhood.

## Methods

The HealthNuts cohort consists of 5276 children who were recruited at age 1 year and have

 followed prospectively. Children with food allergy at age 1 year (peanut [n = 1 < ra >

egg [n = 471] allergy ) and children who developed new sensitizations or food reactions after age 1 year were assessed for food sensitization and allergy (confirmed by oral food challenge when indicated) at the 6-year follow-up.

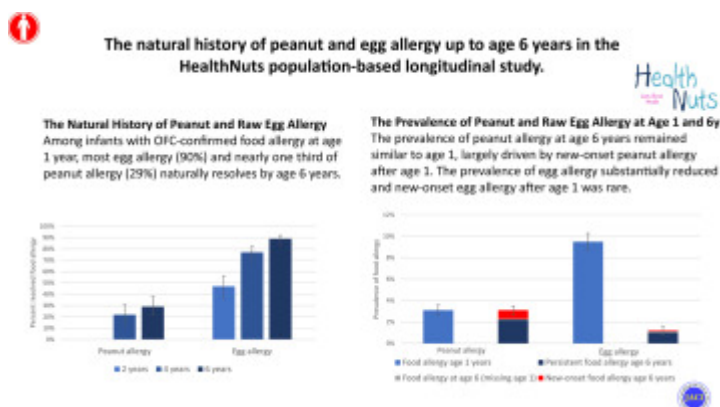
## Results

New-onset food allergy developed by age 6 years was more common for peanut (0.7% [95% CI = 0.5%-1.1%]) than egg (0.09% [95% CI = 0.03%-0.3%]). Egg allergy resolved more commonly (89% [95% CI = 85%-92%]) than peanut allergy (29% [95% CI = 22%-38%]) by age 6 years. The overall weighted prevalence of peanut allergy at age 6 years was 3.1% (95% CI = 2.6-3.7%) and that of egg allergy was 1.2% (95% = CI 0.9%-1.6%). The factors at age 1 year associated with persistence of peanut allergy were peanut SPT result of 8 mm or larger (odds ratio [OR] = 2.35 [95% CI 1.08-5.12]), sensitization to tree nuts (adjusted OR [aOR] = 2.51 [95% CI = 1.00-6.35]), and early-onset severe eczema (aOR = 3.23, [95% CI 1.17-8.88]). Factors at age 1 associated with persistence of egg allergy at age 6 were egg SPT result of 4 mm or larger (OR = 2.98 [95% CI 1.35-6.36]), other (peanut and/or sesame) food sensitizations (aOR = 2.80 [95% CI = 1.11-7.03]), baked egg allergy (aOR = 7.41 [95% CI = 2.16-25.3]), and early-onset severe eczema (aOR = 3.77 [95% CI = 1.35-10.52]).

## Conclusion

Most egg allergy and nearly one-third of peanut allergy resolves naturally by age 6 years. The prevalence of peanut allergy at age 6 years was similar to that observed at age 1 year, largely owing to new-onset food peanut allergy after age 1 year. Infants with early-onset eczema, larger SPT wheals, or multiple food sensitizations and/or allergies were less likely to acquire tolerance to either peanut or egg.

## Graphical abstract



## Key words

[Peanut allergy](#) • [egg allergy](#) • [natural history](#) • [persistence](#) • [incidence](#) • [prevalence](#) • [resolution](#) • [late-onset food allergy](#)

### Abbreviations used:

[aOR](#) (Adjusted odds ratio), [AUC](#) (Area under the curve), [OFC](#) (Oral food challenge), [PPV](#) (Positive predictive value), [SPT](#) (Skin prick test)

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