

Early dietary interventions for the prevention of food allergy - lessons from peanut allergy

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Research Support

- Immune Tolerance Network
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- Food Allergy Research & Education
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- Food Standards Agency UK
- Rho Federal Systems Division

Guy's and St Thomas' NHS Foundation Trust

KING'S College LONDON
University of London

Early dietary interventions to prevent allergy

- LEAP, LEAP-On
- STAR, BEAT, STEP, HEAP – egg
- EAT – egg, peanut, wheat, sesame, milk, fish
- PreventADALL – peanut, milk, egg, wheat
- PEAAD – peanut

THE NEW ENGLAND JOURNAL OF MEDICINE

ORIGINAL ARTICLE

Randomized Trial of Peanut Consumption in Infants at Risk for Peanut Allergy

Peanut allergy 'cut by early exposure'

Exposing infants to peanuts causes big reduction in peanut allergy, study shows

Feed babies peanut products to reverse rise in allergy, say scientists

Feeding peanuts to babies protects from peanut allergies, scientists find

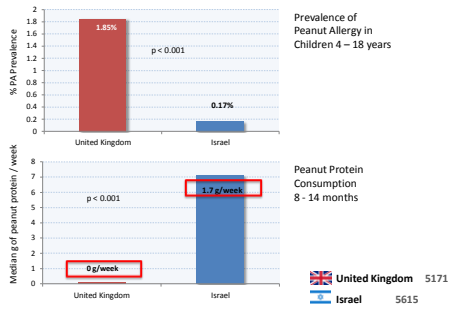
Allergy prevention advice 1998-2008

- Pregnant or breastfeeding women who **are themselves atopic, or where another first-degree relative of the child is atopic**, may wish to avoid eating peanuts and peanut products during pregnancy and lactation.

<https://cot.food.gov.uk/committee/committee-on-toxicity/cotereports/cotwgreports/cotpeanutallergy>



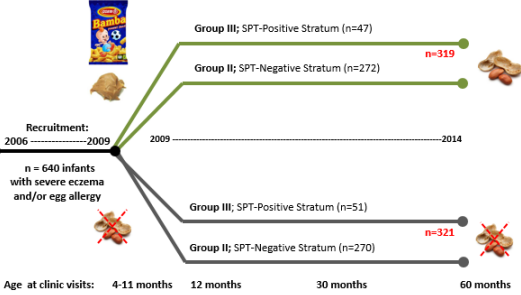
Early consumption of peanut is associated with a low prevalence of peanut allergy



Du Toit G, et al. Early Consumption of Peanut in Infancy is Associated with Low Prevalence of Peanut Allergy. JACI 2008; 122: 984-91.



LEAP Study Design



Dietary intervention

Consumption:

- 2g of peanut protein x 3 times per week
- 2g peanut protein is:
 - 1 teaspoon peanut butter
 - $\frac{2}{3}$ packet of Bamba (25g pack)
- Whole peanuts should be avoided due to choking risk



Avoidance Group:

- Avoid all peanut-containing foods. Do not need to avoid products with 'may contain' advisory statements unless allergic.

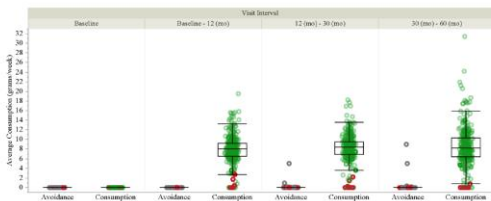
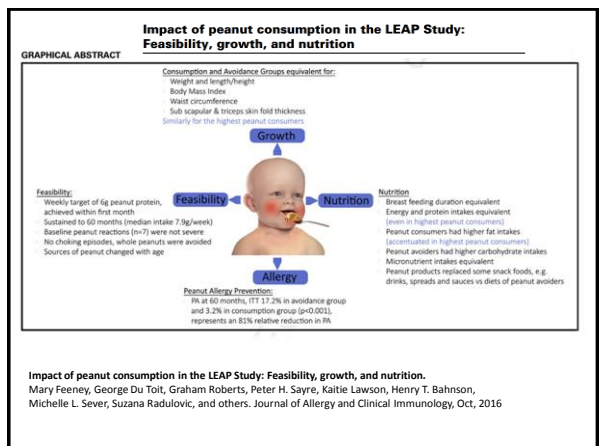
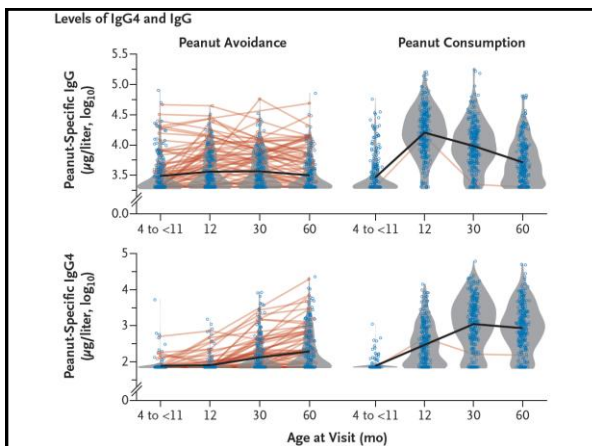
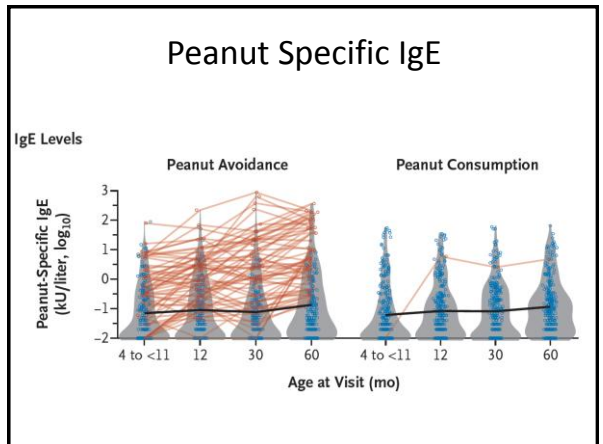
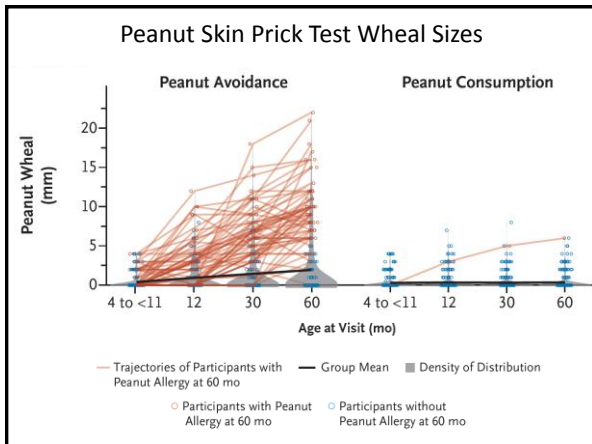
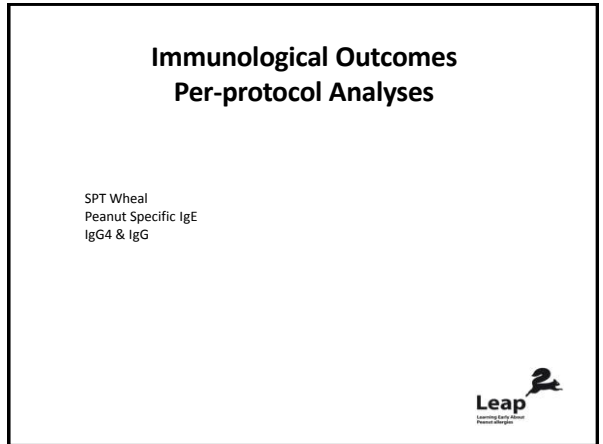
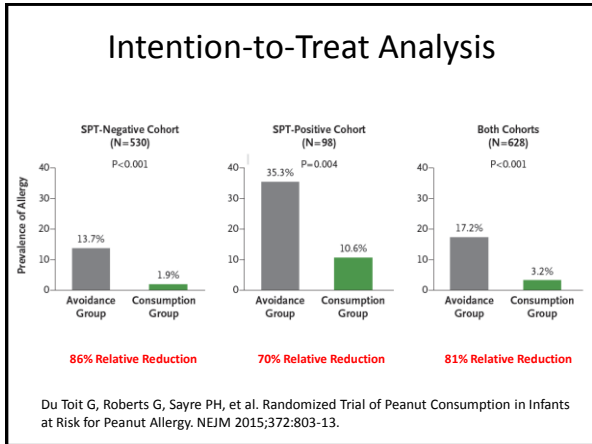
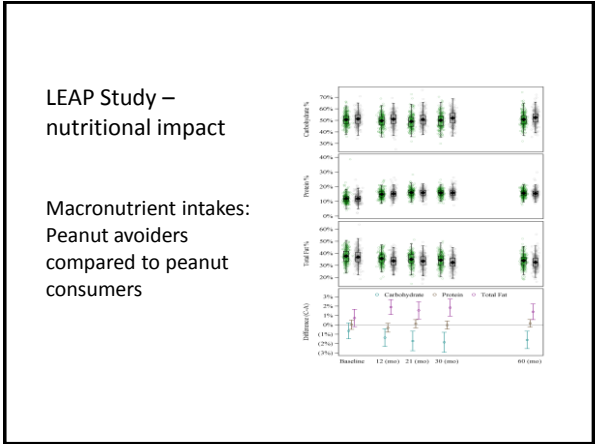
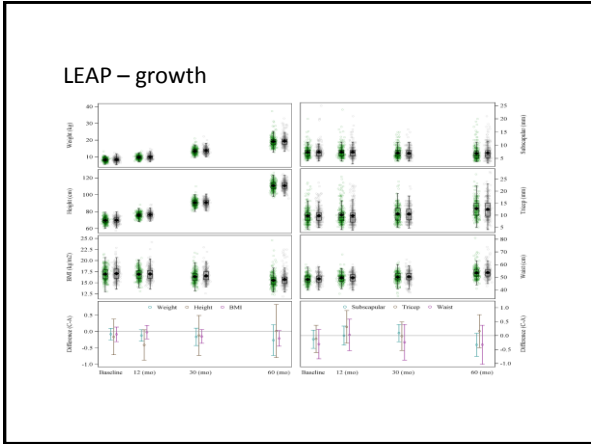


FIG 1. Average peanut consumption over time (grams peanut protein per week). Peanut consumption summarized throughout the study from PFDs completed at baseline and between study visits. Median weekly consumption during the first 2 years of life (per-protocol adherence) has been previously published.¹ Gray dots denote subjects randomized to the avoidance group. Green dots denote subjects randomized to the consumption group. Red stipple denote participants who were peanut allergic at 60 months.

Clinical Outcomes





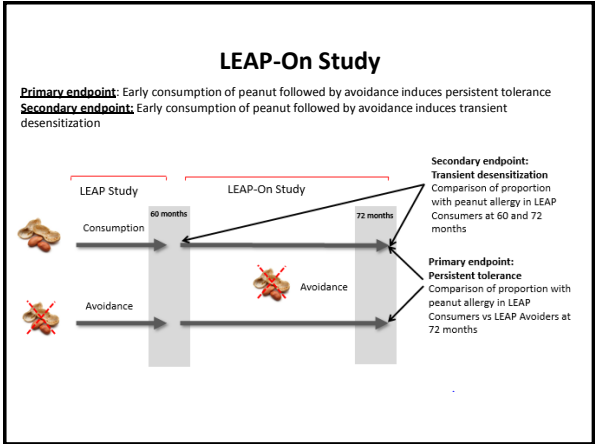


LEAP Study - Impact on breastfeeding

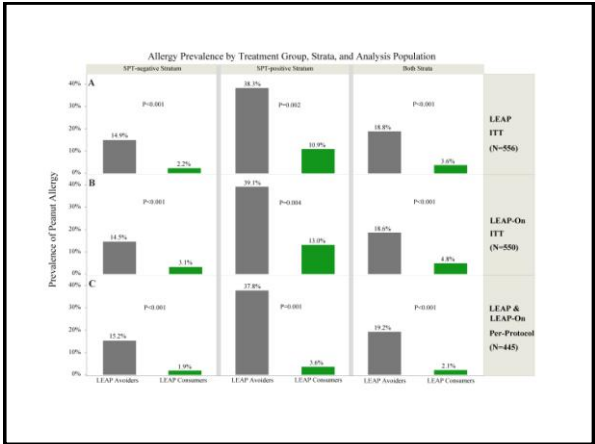
TABLE 1. Infant feeding characteristics

Feeding characteristics	Avoiders (N = 327)	Consumers (N = 319)	Total (N = 646)	P value
Breast and formula feeding				
Participant breast-fed?				.25*
Yes, n (%)	292 (91.0)	298 (93.4)	590 (92.2)	
Age at cessation of breast-feeding (mo)				.15†
n (%)	289 (96)	290 (90.9)	579 (90.5)	
Mean ± SD	7.5 ± 5.8	8.1 ± 5.8	7.8 ± 5.8	
Breast-feeding at randomization?				.23*
Yes, n (%)	127 (39.6)	141 (44.2)	268 (41.9)	
Number of months breast-fed postrandomization				.56†
n (%)	127 (39.6)	141 (44.2)	268 (41.9)	
Mean ± SD	4.9 ± 4.8	4.7 ± 4.9	4.8 ± 4.9	
Given formula before randomization?				.52*
Yes, n (%)	287 (89.4)	290 (90.9)	577 (90.2)	
Age solid food introduced at baseline (mo)				.93†
Earliest age any solid introduced				
n (%)	321 (100)	319 (100)	640 (100)	
Mean ± SD	5.0 ± 0.9	5.0 ± 0.8	5.0 ± 0.9	

Feeney M, Du Toit G, Roberts G, Sayre PH, Lawson K, Bahnsen HT, et al. Impact of peanut consumption in the LEAP Study: Feasibility, growth, and nutrition. J Allergy Clin Immunol 2016



LEAP-On Study primary outcome: Persistent tolerance?



Conclusions

- **Peanut consumption** beginning in the first year of life **prevents peanut allergy** in a high-risk population.
- Safe, effective and feasible
- Associated with immunological changes

- Effects are maintained following 12 months of avoidance or if peanut is consumed in lesser amounts after 5 years of age.

What next?

- Are the effects of early-life peanut consumption maintained if peanut is continued *ad-libitum* over many years?

- Allergy prevention guidelines under expert review.
- NIAID published update in 2016
<https://www.niaid.nih.gov/sites/default/files/peanut-allergy-prevention-guidelines-clinician-summary.pdf>

- Results from other intervention studies under consideration re. other allergens.... Guidance to follow.