

Food Allergy Prevention in Action: Empowering Dietitians with Early Feeding Strategies

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Disclosures

- Board Member/Advisory Panel
 - Forbes Health Advisory Board Member since 2022
 - Member of the Advisory Council for the Robert Wood Johnson Foundation's Reframing Child Health and Obesity Project
 - Former National Media Spokesperson, Academy of Nutrition & Dietetics
 - Medical Advisor, Kabrita USA
- Author
 - *Safe and Simple Food Allergy Prevention: A Baby-Led Feeding Guide to Starting Solid and Introducing Top Allergens*, Benbella Books, Distributed by Penguin Random House, 2024
 - *Simple & Safe Baby-Led Weaning: How to Integrate Foods, Master Portion Sizes, and Identify Allergies*, Rockridge Press, 2020
- Founder and CEO of Malina Malkani, LLC, @healthy.mom.healthy.kids
- Former and Current Brand Partnerships
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Food Allergies 101

- Prevalence: between 6-8% in children (1 in every 13 kids); up to 10.8% of adults
- High cost: (financial, psychosocial, etc.)
- Disproportionately affects people of color, those with low SES
- Societal confusion about food allergies



Image credit: Deposit Photos

Food Allergies 101: What is a True Food Allergy?

- Immunoglobulin-E-mediated (IgE-mediated)
- Usually triggered by a food protein
- Reactions happen quickly
- Reproducible every time the food is eaten
- Different from non-IgE-mediated food sensitivities and/or intolerances



Source: <https://www.foodallergy.org/resources/epidemic-of-food-allergy>

Food Allergy Facts



Image credit: Deposit Photos

- Most babies are not born with food allergies
- No known cure
- 9 foods are responsible for ~90% of all food allergies

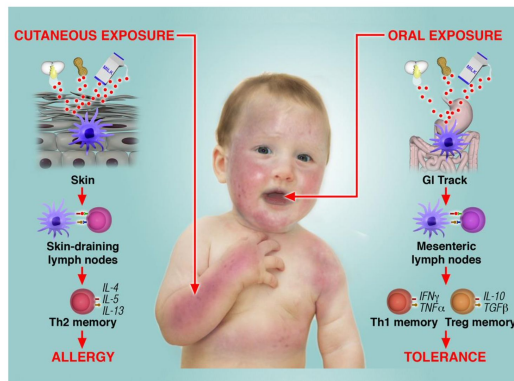


Food allergies (FA): Causes & Rising Prevalence?

- 50% increase in food allergy prevalence between 1997-2011 (CDC)
- The development of FAs is complicated and likely multifactorial
- Potential contributing factors:
 - Hygiene Hypothesis
 - Genetics, epigenetics
 - Environment
 - Diet
 - Standard American Diet
 - Lack of diet diversity, high fiber, Mediterranean diet
 - Specific nutrient deficiencies (i.e., Vitamin D)
 - Microbiome
 - Dual Allergen Exposure Hypothesis

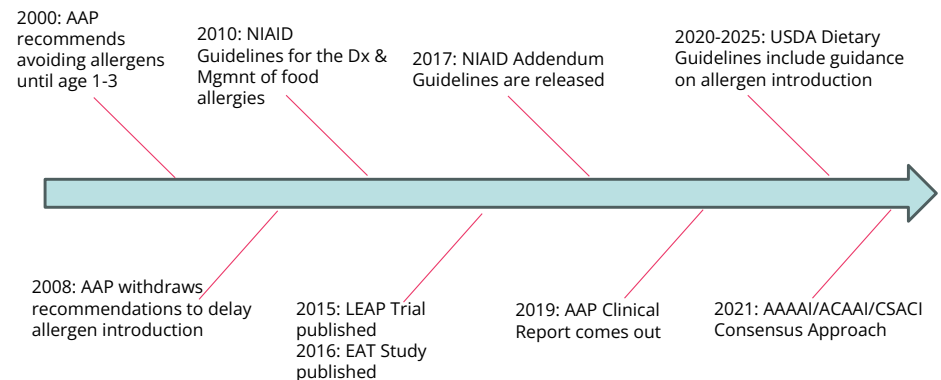


Dual Allergen Exposure Hypothesis



J allergy clin immunol 2008; 121: 1331-6

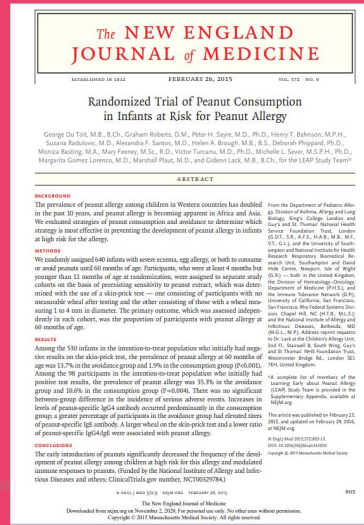
Timeline of the History of Changes in Infant Feeding Recommendations





Learning Early About Peanut (LEAP) Study

Image credit: Canva



<https://www.nejm.org/doi/full/10.1056/NEJMoa1414850>

Addendum Guidelines for the Prevention of Peanut Allergy



Summary of Addendum Guidelines

Addendum Guideline	Infant Criteria	Recommendations	Earliest Age of Peanut Introduction
1	Severe eczema, egg allergy, or both	Strongly consider evaluation with peanut-specific IgE and/or skin prick test and, if necessary, an oral food challenge. Based on test results, introduce peanut-containing foods.	4 to 6 months
2	Mild to moderate eczema	Introduce peanut-containing foods.	Around 6 months
3	No eczema or any food allergy	Introduce peanut-containing foods.	Age-appropriate and in accordance with family preferences and cultural practices

Image credit: NIAID

Who is at Risk for Food Allergies?

Highest risk for the development of food allergies

- Babies with severe eczema
- Babies with another diagnosed food allergy
- Babies with mild to moderate eczema
- Babies with a family history of allergic disease in one or both parents
- Babies in the general population



What is severe eczema?

Per the NIAID: severe eczema is “persistent or frequently recurring eczema with typical morphology and distribution assessed as severe by a health care provider and requiring frequent need for prescription-strength topical corticosteroids, calcineurin inhibitors, or other anti-inflammatory agents despite appropriate use of emollients.”

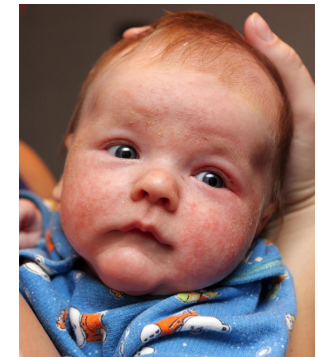


Photo: Sourced from Deposit Photos

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Screening Prior to Introduction?

- Per the NIAID, high-risk babies may need screening prior to early intro (endorsed by AAP, USDA, HHS)
- U.S. is the only country that includes a screening step as part of early feeding guidelines
- In a more recent document providing their consensus approach to the primary prevention of food allergy, the AAAAI, ACAAI, & CSACI de-emphasize the need for screening, recommending that all babies, regardless of risk, should be fed peanut-containing foods + egg between 4-6 months when developmentally ready



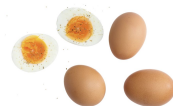
Image: Sourced from Canva
DOI: 10.1016/j.jaip.2020.11.002, PMID: 33483153

Image: Sourced from Malina Malkani, LLC
PMID: 33250376



Offer Allergens Early and Often! (Especially Peanut & Egg)

- FA Prevention is simple and effective, but not widely utilized
- AAP and the new Dietary Guidelines for Americans now encourage early intro of top allergens (especially peanut & egg) in the first year, starting at ~6 months
 - High-risk babies (with moderate to severe eczema or existing egg allergy) may benefit from starting peanut foods even earlier (4-6 months) (NIAID)
 - Parents of high-risk babies should speak with their pediatrician or healthcare provider and work together to create an individualized plan for allergen introduction
- **IMPORTANT NOTE:** Once introduced, **keep potential allergens in the diet frequently** – for peanut foods, that means 2 tsp, 2-3x/week



Images: Sourced from Canva

Signs & Symptoms of an Allergic Reaction

If one mild symptom, call the pediatrician & ask for guidance

Mild Symptoms Can Include:

- A new rash
- A few hives around the face or mouth

More Severe Symptoms Can Include:

- Vomiting
- Lip, face, or tongue swelling
- Widespread hives
- Wheeze
- Difficulty breathing
- Repetitive coughing
- Sudden lethargy or limpness
- Change in skin color

If more than one mild symptom, or any severe symptom, inject epinephrine & call 911 (request ambulance with epinephrine)

Challenges to Diversifying the Diet & Offering Allergens to Infants

- Lack of awareness
- Confusion
- Fear
- Lack of knowledge
- Cost of foods containing potential allergens
- Access to foods containing potential allergens



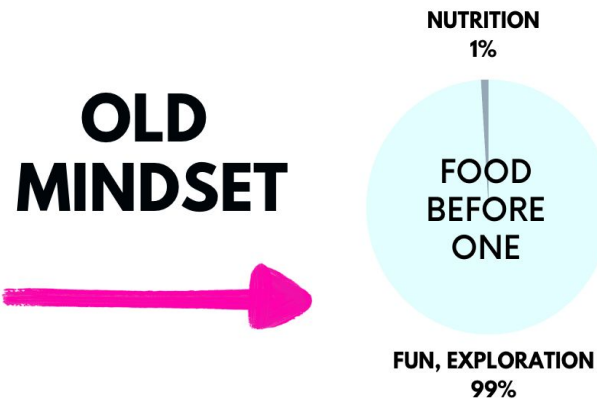
Image: Sourced from Malina Malkani, LLC

Importance of Shared Decision Making

- Cornerstone of patient-centered care
- Collaboration between providers, patients, and their families
 - Sharing evidence
 - Explaining available options
 - Discussing the benefits, risks, pros and cons
- Recommended by the NIH, AMA, AAP; allergy-related resources available through the AAAAI and the ACAAI
- Especially important in pediatric food allergy



“Food Before 1 is Just For Fun”



Is Food Before 1 Just For Fun? Nope!



Images: Sourced from Malina Malkani, LLC

At what age should babies start solids?

- Lots of confusion and changing guidelines over the past several decades
- Risks associated with starting too early (before 4 months) & too late (after 7 months)
- WHO, AND & AAP & the new DGAs all now recommend starting solids at ~6 mos when signs of readiness are present



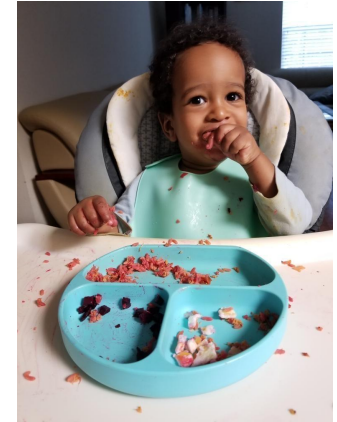
Image: Sourced from Canva

Options for Starting Solids

- Baby-Led Weaning
- Traditional Parent-Led Spoon-Feeding of Purees
- Combination of Both

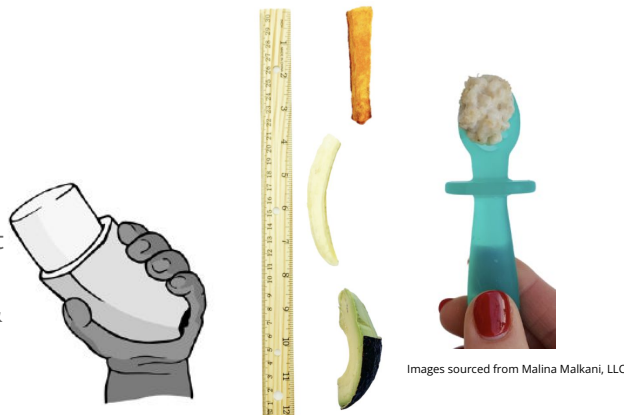


Images: Sourced from Malina Malkani, LLC



Establish Feeding First

- There is no perfect first food!
- Great options include ripe banana, ripe avocado, steamed or baked sweet potato, iron-fortified infant oat cereal
- Consider safe food sizing & texture



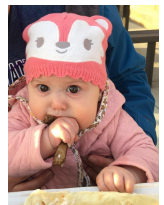
Images sourced from Malina Malkani, LLC

FAQ: Should Peanut or Egg Be Introduced as the First Food?

- Establish feeding first with foods that are not common allergens
- Guide families toward a collection of nutrient-rich early foods with an eye toward iron and zinc
- Don't get stuck here for more than a few days before moving on to allergen introduction



Images sourced from Malina Malkani, LLC



FAQ: Are BLW and FA Prevention Compatible?

- Consider the Dual Exposure Hypothesis
- Emphasize the importance of early introduction
- Consider spoon-feeding for the first couple of introductions
- No evidence that using two different feeding models is detrimental
- Consider using a layer of ointment as a barrier before feeds
- Promote excellent skin care for babies with eczema



Image credit: Malina Malkani, LLC
(8-Month-Old baby eating pasta, tomato sauce, watermelon)

How to Begin Offering Top Allergens to Higher-Risk Babies

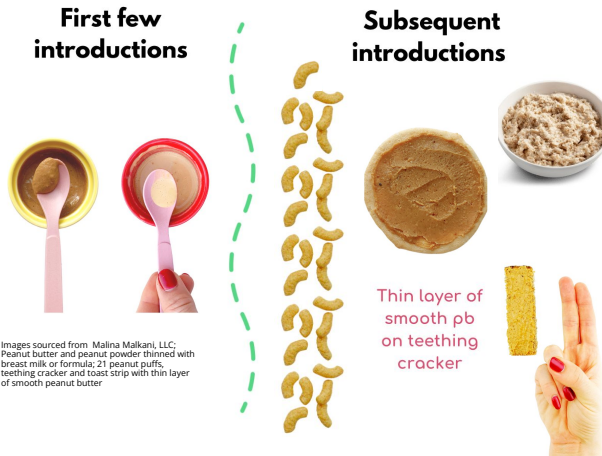


Image sourced from Malina Malkani, LLC

- Pick a day when caregiver can be fully attentive for ~2 hours, well before a nap
- Start with a healthy, happy baby!
- Offer a tiny bit to start on the tip of a spoon
- Wait 10 minutes
- If no reaction, continue to feed the rest of the portion at the infant's feeding pace
- Observe for ~2 hours
- Once introduced, continue to offer the allergen consistently (about 2x/week) going forward

Practical Ways to Introduce Peanuts

- Nutrient-dense, recommended early food for babies
- Early intro of peanut does not affect the duration of breastfeeding, nor does it negatively affect growth or nutrition
- Avoid whole peanuts and globs of peanut butter (choking hazards)
- Offer 2 grams peanut protein ~3x/week in an infant safe form (LEAP Study)



Images sourced from Malina Malkani, LLC:
Peanut butter and peanut powder thinned with breast milk or formula; 21 peanut puffs; teething cracker and toast strip with thin layer of smooth peanut butter

Thin layer of smooth pb on teething cracker

Practical Ways to Introduce Eggs

- Scrambled or hard-boiled
- Pureed with a little liquid
- Ensure egg is fully cooked
- Offer both the white and yolk
- Offer 1/3 of an egg, 2-3x/week
- No restrictions on the number of eggs per week for babies

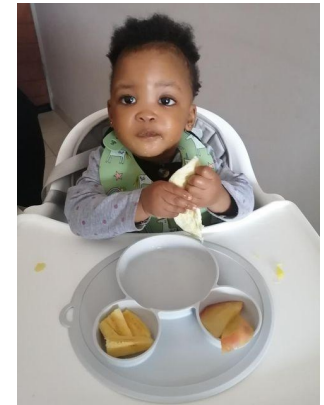


Image credit: Malina Malkani, LLC (6-month-old baby girl eating cooked egg, steamed apple, banana)
(<https://pubmed.ncbi.nlm.nih.gov/27939035/>)

Practical Ways to Offer Cow's Milk Protein

- Cow's milk not recommended as a beverage, but a little in recipes is fine
- Yogurt: choose plain (to keep added sugars low) and full-fat
- Cheese: Avoid soft cheeses made with unpasteurized milk (goat, feta)
- If baby is introduced to and tolerates a cow's milk formula at any point during infancy, keep offering it (regular ingestion, as little as 10mL/day has been shown to help prevent loss of tolerance)



Image credit Malina Malkani, LLC

Practical Ways to Offer Fish

- Cook thoroughly, remove any bones
- If canned, look for BPA-free packaging, 'low-salt,' or 'no-salt-added'
- Avoid large-prey, higher-mercury fish (i.e., shark, king mackerel, swordfish, tilefish from the Gulf of Mexico, bigeye and albacore tuna, orange roughy, and marlin per the CDC)

Sardines offered as a finger food



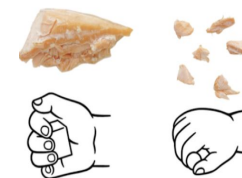
Cooked, flaky fish (i.e., Arctic char, cod)



Salmon patty cut into finger sized strip



Canned salmon mixed w/ plain yogurt



Images sourced from Malina Malkani, LLC; 2-year-old boy holding a fish bone

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Practical Ways to Offer Tree Nuts

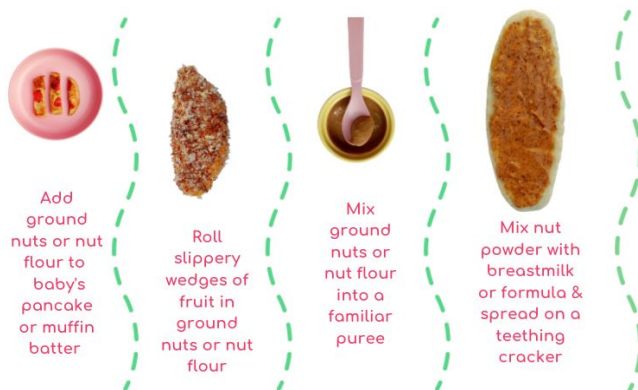


Image credits: Malina Malkani, LLC; practical ways into serve tree nuts to infants – pancakes made with nut flour, fruit rolled in ground nuts, thinned nut butter on a spoon, teething cracker topped with thin layer of nut butter

Practical Ways to Offer Shellfish

Shredded & added to pasta sauce



Crabcake



Shrimp Fritter



Image credit: Malina Malkani, LLC; practical ways to introduce and serve shellfish to babies

Keep in mind...

Early introduction of top allergens is important, but so is keeping them in the diet **consistently** and **frequently** once introduced, as a part of the family's regular routine of meals and snacks. This is an essential part of the food allergy prevention puzzle that families often forget!

FAQs: Single Food Introductions?



Image credit: Malina Malkani, LLC; 7-month-old baby boy eating broccoli, beef, summer squash

- Healthcare clinicians used to recommend single food introductions for all new foods and waiting a few days before introducing another (not evidence-based)
- Single food introductions of unfamiliar top allergenic foods and pausing for a few days before introducing another is more of a common-sense, conservative approach to allergen introduction
- In the event of a reaction, it makes it easier to determine which food is responsible, but it's not evidence-based or necessary; it's simply an option

DOI: 10.1016/j.jaip.2020.11.002.

The Role of Diet Diversity

- More research is needed
- May help protect against the development of food allergies, decreasing the odds of developing a food allergy during the first 10 years of a child's life by a third
- Families should introduce foods from all the food groups that fit into their cultural traditions, budget and preferences (DGA)
- Aim to introduce at least 1 new food per day

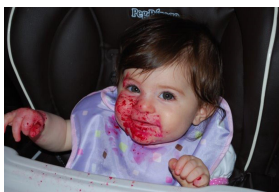


Image credit: Malina Malkani, LLC; a 6-month-old baby girl covered in pureed beets and an 11-month-old boy eating beetroot casserole, cheese and blackberries

Microbiome

- Probiotic supplementation during pregnancy, breastfeeding, and early life MAY reduce the risk of eczema and sensitization to cow's milk
- Probiotic supplementation: no effect on food allergy
- Butyrate:
 - Short-chain fatty acid that helps maintain the intestinal barrier
 - Higher levels associated with reduced risk of allergic disease



<https://doi.org/10.1111/pai.12682>
<https://doi.org/10.1016/j.jaip.2020.01.029>

•<https://doi.org/10.1371/journal.pmed.1002507> <https://doi.org/10.1111/all.13660>

Breastfeeding for FA Prevention?



- Insufficient evidence to support material dietary restrictions during pregnancy or breastfeeding (EAACI, AAAAI/ACAAI/CSACI, AAP)
- We do have evidence that exclusive breastfeeding for 3-4 months decreases the incidence of eczema in the first 2 years of life
- No evidence that supports short- or long-term advantages for exclusive breastfeeding beyond 3 to 4 months for atopy prevention
- No conclusions can be made about the role of breastfeeding in either preventing or delaying the onset of specific food allergies

FAQs: Dose?

- Peanut: for high-risk, 2 g (2 tsp) peanut protein 3x/week if tolerated (LEAP)
- Egg: 2 g egg protein (about 1/3 of an egg) 2-3x/week (Consensus Guidelines)
- Other allergens: 2 g allergenic protein per week is thought to be protective, but we don't know for sure
- Don't over-medicalize it!
- Emphasize serving an appropriate portion and keeping it in the diet, don't worry if baby doesn't finish



Image credit: Malina Malkani, LLC

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Practice Applications

Key points of focus when counseling families on infant feeding:



- Help identify babies at high risk for food allergy
- Promote excellent skincare
- Educate about food allergy prevention EARLY
- Babies with eczema are the priority, but ALL babies need early, consistent allergen exposure
- Guide families to NOT delay allergen intro
- Start solids when baby is developmentally ready (~6 mos, not before 4 mos)
- Help make early intro of allergens practical, accessible, and actionable
- Promote a diverse diet (~1 new food per day)
- Provide adequate nutrients, but do not over-supplement
- If baby is introduced to and tolerates a milk-based formula during infancy, keep offering regularly (minimum of 2 tsp/day)
- Prioritize the introduction of peanut and egg
- Once an allergen is introduced, keep offering consistently!
- Encourage + facilitate shared decision-making
- Know that there is debate about whether to screen before allergen introduction



Find more info at:

MalinaMalkani.com/blog

Thank you!

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