

Overcoming Key Barriers to Peanut Allergy Prevention

Jay Gruhlkey, MD

Family Physician, Private Practice
Lonestar Medical
New Braunfels, Texas

Educational Objectives

By completing this educational activity, the participant should be better able to:

1. Review the impact of peanut allergies on patients.
2. Discuss the advantages of early peanut introduction.
3. Review best practice guidelines for food allergy testing.

Speaker Disclosure

Dr. Gruhlkey disclosed that he is an employee of Direct Allergy.

Supporter Disclosure

This educational activity is supported by an educational grant from National Peanut Board. It has been planned and produced by Georgia Academy of Family Physicians with Texas Academy of Family Physicians strictly as an accredited continuing medical education activity.

OVER COMING KEY BARRIERS TO PEANUT ALLERGY PREVENTION

JAY L. GRUHLKEY, MD, FAAFP

Written by **THERESA JACOBS, MD, FAAFP**

1

Disclosure of Financial Interest

I, Jay L. Gruhlkey, MD, FAAFP have a financial arrangement with Direct Allergy, that could be perceived as a real or apparent conflict of interest in the context of this presentation. A speaker's honorarium has been paid by Texas Academy of Family Physicians.

2

OBJECTIVES

By the end of this educational activity, learners should be better able to:

1. Review the impact of peanut allergies on patients.
2. Discuss the advantages of early peanut introduction.
3. Review best practice guidelines for food allergy testing.

3

4

|

Food Allergy Impacts Quality of Life

- Food allergy limits a major life activity and may qualify an individual for protection under the Americans with Disabilities Act of 1990 (ADA) and Section 504 of the Rehabilitation Act of 1973.
- Caring for children with food allergies costs U.S. families nearly \$25 billion annually.
- About one in three children with food allergy reports being bullied as a result.

5

PEANUT ALLERGIES

Roughly 1.2 million children and teens in the United States -- or just over 2% of the non-adult population

6

PEANUT ALLERGIES

Among babies under the age of 1 year, one of the studies showed a roughly three-fold increase in peanut allergy between 2001 and 2017, with the most current incidence estimated to be 5.2%.

7

Possible Prevention

8

Learning Early About Peanut Allergy (LEAP)

- 640 infants at high-risk for peanut allergy d/t egg allergy or mod/severe eczema
- Half ate peanut foods at 4-11 months
- Half avoided
- Up to 86% reduction in peanut allergy at the end of 5 years
- Early introduction is safe and effective
- <http://www.nejm.org/doi/full/10.1056/NEJMoa1414850#t=article>



9

Persistent of Oral Tolerance to Peanuts

LEAP-On

- Followed same kids from LEAP for 12 more months
- Everyone avoided peanut foods
- Tolerance and protection from early introduction was retained
- <http://www.nejm.org/doi/full/10.1056/NEJMoa1514209#t=article>

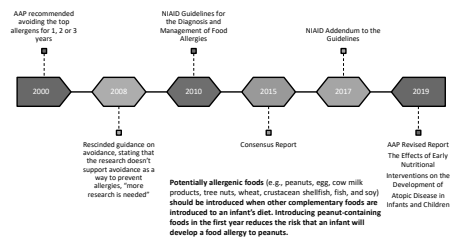
10

Early Peanut Introduction

- High risk infants should begin **peanut foods** between 4 and 6 months of age.
- All other infants should begin around 6 months.
- Doing so greatly decreases the risk of developing a **peanut allergy**.

11

Quick History of Feeding Guidelines



12

|

There are three groups for infants according to the guidelines:

1. Severe eczema, egg allergy or both
2. Mild to moderate eczema
3. No eczema or any food allergy

13

Group 1: Severe Eczema, Egg Allergy, or Both

- This group is at highest risk to develop peanut allergy and would benefit most from early introduction
- A physician (allergist) may evaluate via sIgE testing. (Most recent AAAAI recommendations are to skip screening)
- No sensitization (negative IgE testing) indicates very low risk for allergic reaction upon introduction
- Physicians should consider offering introduction in office for those with sensitization.

14

Group 2: Mild to Moderate Eczema

- These infants do not need peanut IgE testing before introduction
- It is recommended that these infants be introduced to age-appropriate peanut-containing foods as early as 4 to 6 months of age
- Infants should already be eating other solid foods to show developmental readiness to add peanut-containing foods into their diet
- Some caregivers and health care providers may desire an in-office supervised feeding and/or evaluation before to introduction

15

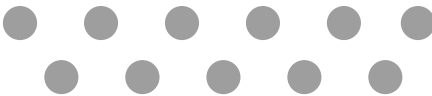
Group 3: No History of Eczema or Food Allergy

- These infants do not need peanut IgE testing before introduction
- It is recommended that these infants be introduced to age-appropriate peanut-containing foods around 6 months and within the first year
- These infants do not need a medically-supervised feeding

16

No/Mild History of Eczema or Food Allergy but a Family History of Peanut Allergy

- This is not a guideline included in the LEAP study, but the question comes up often
- Data from randomized controlled trials do not exist for this group of infants
- Data are limited about risk of peanut allergy in this group. Some studies show increased risk of peanut allergy compared with infants who do not have a family history
- Due to potential benefit, it is recommended that these infants have age-appropriate peanut-containing foods introduced into their diets around 6 months and within the first year
- Parents and health care providers may decide whether to test for sensitization and method of introducing peanuts, given the lack of data in this group.



(11 x icons)

17

How Much Peanut Do Infants Need to Eat?

- In LEAP, infants ate 2 grams of peanut three times a week
- It remains unknown whether lesser amounts, or less frequent feedings, will offer the same benefit in prevention of peanut allergy
- Once babies are successfully eating peanut, they should continue to do so on a regular basis (unless concerns for a new allergic reaction arise)
- The total amount of peanut protein to be consumed per week should be 6 to 7 grams over three or more feedings
- In the LEAP study, 75% of children were able to eat this amount of peanut through the entire study.

18

How to Start

- Start with a healthy, happy baby and feed at home.
- Don't introduce if baby is sick, vomiting or has a fever.
- Start early in the day and observe for at least 2 hours.
- Prepare a full, infant-sized portion, but give just a taste to start. After 10 minutes, continue with the rest. For peanut, the goal is 2g/day.

19

INTRODUCING PEANUT

DO:

- Introduce other lower allergen foods first.
- Use thinned peanut butter, powdered peanut butter, or either, mixed with puree.
- Use peanut puffs for babies that have been "melted" into breastmilk, formula or warm water.

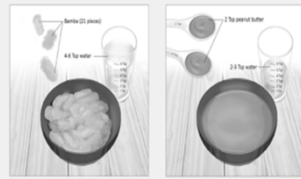
DON'T:

- Feed whole peanuts to infants or young children.
- Give babies full strength peanut butter.
- *These can both be choking hazards for baby.

20

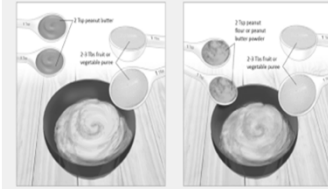
Four Recipe Options, Each Containing Approximately 2g of Peanut Protein

Note: Teaspoons and tablespoons are US measures (3 and 15 mL, for a level teaspoon or tablespoon, respectively).



- Option 1: Bars (Chew, level), 11 puffs (approximately 2 g of peanut protein)**
- Note: Bars are served because 1 was the product used in the LEAP trial and therefore has proven efficacy and safety. Other peanut puff products with similar peanut protein content can be substituted.
- For babies less than 18 months of age, soften the bars with 4 to 6 teaspoons of water.
 - For older infants who can manage dissolvable textures, unsalted bars can be fed. If dissolvable textures are not part of the infant's diet, softened bars should be avoided.
- Option 2: 1/2 Tsp of peanut butter, 2 teaspoons (5 mL) of peanut protein**
- Whisk 2 teaspoons of peanut butter and slowly add 2 to 3 teaspoons of hot water.
 - The used peanut butter is thinned, thinned, and well blended.
 - Let cool.
 - Increase water amount if necessary for additional consistency or to achieve desired consistency for the infant.

21



- Option 3: 2 Tsp of peanut butter, 2 teaspoons (5 mL) of peanut protein**
- Measure 2 teaspoons of peanut butter.
 - Add 2 to 3 tablespoons of pureed (cooked) fruit or vegetables to peanut butter. You can increase or reduce volume of puree to achieve desired consistency.
- Option 4: 1/2 Tsp of peanut butter, 2 teaspoons (5 mL) of peanut protein**
- Note: Peanut flour and peanut butter powder are 2 distinct products that can be interchanged because they have a very similar peanut protein content.
- Measure 2 teaspoons of peanut flour or peanut butter powder.
 - Add approximately 2 to 3 teaspoons of pureed (cooked) fruit or vegetables to flour or powder. You can increase or reduce volume of puree to achieve desired consistency.

22

5 EASY WAYS TO INTRODUCE PEANUT FOODS TO YOUR INFANT

- MIX WITH WATER, FORMULA OR BREAST MILK**
This 2 tsp. of peanut butter with 2-3 tsp. hot water, formula or breast milk. Allow to cool before serving.
- MIX WITH FOOD**
Blend 2 tsp. of peanut butter into 2-3 Tbsp. of foods like infant cereal, yogurt (if already tolerating dairy), pureed chicken or tofu.
- MIX WITH PRODUCE**
Stir 2 tsp. of powdered peanut butter into 2 Tbsp. of previously tolerated pureed fruits or vegetables.
- PEANUT SNACKS**
Give your baby a peanut-containing teething food, such as peanut puffs.
- TEETHING BISCUITS**
Teething infants who are older and self-feeding may enjoy homemade peanut butter teething biscuits. Find a recipe for teething biscuits at nationalpeanutboard.org.

Remember:

The recommended way to introduce baby-friendly peanut foods depends on each child's individual risk factors. Responding to your child's risk, research-based information provided here is meant to guide you in your decision-making. Your child's pediatrician should not be given to children less than 4 years of age. This content is not intended to be a substitute for professional medical advice, diagnosis or treatment.

preventpeanutallergies.org

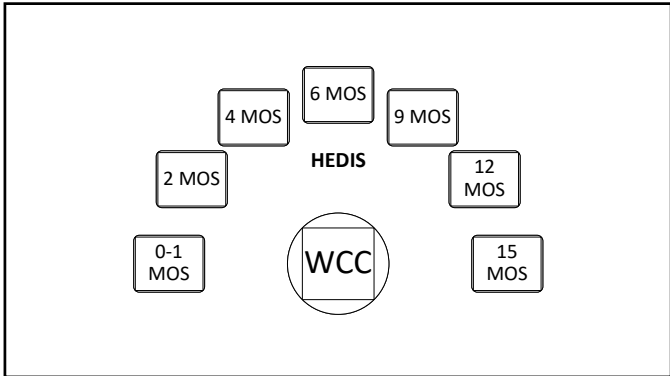
23

What Role Will FP's Play

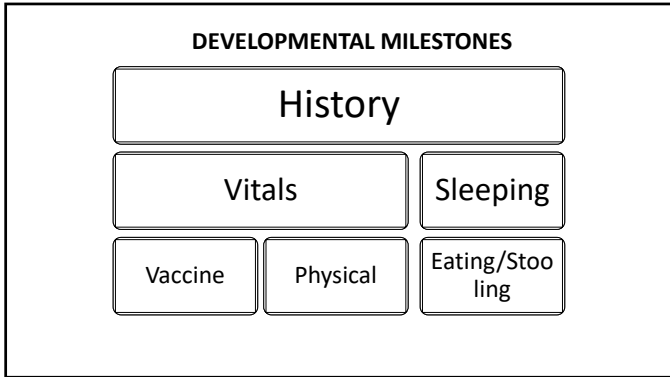
24

WE SEE FAMILIES

25



26



27

Nutrition and Feeding

Determine whether baby is ready for solids; introduce single-ingredient foods one at a time; respond to hunger, fullness cues.

(11 x icons)

28

Early Peanut Introduction

- High risk infants should begin **peanut foods** between 4 and 6 months of age.
- All other infants should begin around 6 months.
- Doing so greatly decreases the risk of developing a **peanut** allergy.

29

TESTING

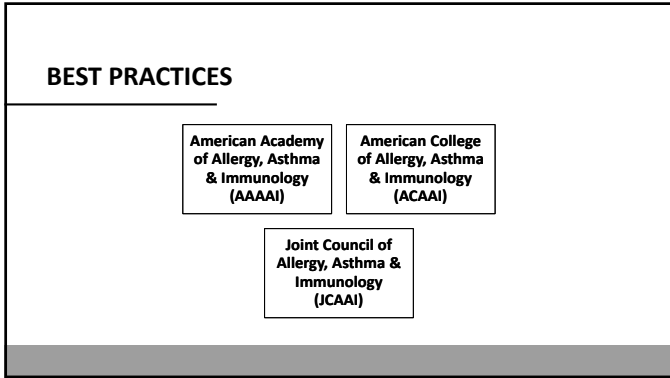
When to test?

Who to test?

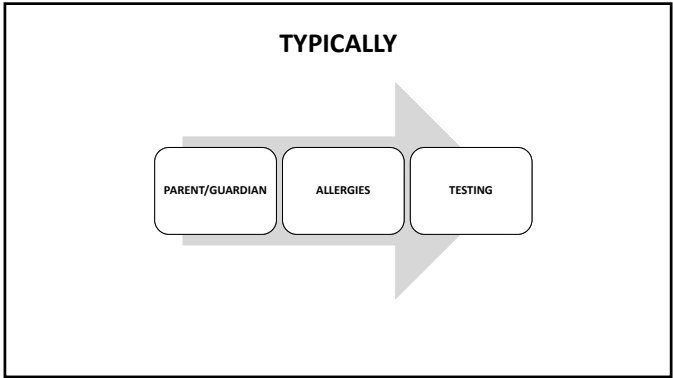
What test?

(11 x icons)

30



31



32

- ### ORAL FOOD CHALLENGE
- Goal standard
 - Used to confirm negative or questionable test result
 - Allergist Office

33

- ### PATCH TESTING
- Preferred for delayed T cell-mediated response
 - Poison Ivy
 - Cosmetics
 - Jewelry

34

- ### IgE
- Specific serum immunoglobulin E (IgE) antibody or allergy skin testing is preferred for patients with suspected IgE-mediated response.

35

Suspicion of peanut allergy

Is it allergy? Risk for severe reactions?

- **Arj h 2** – ImmunoCAP #23 Arj h 2
 - Often associated with systemic and severe reactions.
 - Associated with cross-reactivity to tree nuts, e.g. almond and Brazil nut.
 - A peanut storage protein.
- **Arj h 1** – ImmunoCAP #22 Arj h 1
 - Often associated with clinical reactions.
 - Associated with cross-reactivity to nuts and legume seeds, e.g. lentil and pea.
 - A peanut storage protein.
- **Arj h 9** – ImmunoCAP #24 Arj h 9
 - Often associated with clinical reactions.
 - Associated with cross-reactivity to lupin and soybean.
 - A peanut storage protein.
- **Arj h 8** – ImmunoCAP #27 Arj h 8
 - Often associated with systemic and more severe reactions in addition to Oral Allergy Syndrome (OAS).
 - In peanut, however, severe reactions to ITP are not well documented.
 - Stable to heat and digestion, risk for reactions also to cooked food
 - A LTP (Lipid Transfer Protein).
- **Arj h 6** – ImmunoCAP #32 Arj h 6
 - Often associated with local reactions such as OAS.
 - A marker for birch-pollen-related cross-reactions to peanut.
 - A heat labile protein, cooked food is often tolerated.
 - A PR-10 protein.
- **CCD** – ImmunoCAP #6214 CCD
 - Rarely associated with clinical reactions.
 - A marker for identification to cross-reactive carbohydrate determinants (CCD).
 - Present in all plants.

Reference: Kaler C et al. J Allergy Clin Immunol 2007;120:1205. Freeman AE et al. Clin Exp Allergy 2007;37:1207. Freeman S et al. Clin Exp Allergy 2004;34:1035. Bollenster M et al. Clin Exp Allergy 2007;37:1202. Wang Q et al. J Allergy Clin Immunol 2006;118:1410. Freeman S et al. Clin Exp Allergy 2007;37:1202.

36

IgE Mediated


TABLE 4

Common Foods that Produce Allergic Reactions

Cow's milk*	Soy
Fish	Tree nuts (e.g., cashews, walnuts)
Hen's eggs*	Wheat
Peanuts*	
Shellfish	

*-In children and adolescents, hen's eggs, milk, and peanuts cause 85% of food allergies.¹¹

37



TESTING

PCP'S
slgE Food Allergy PANEL Screening

ALLERGIST
slgE single food Panel

38

IgE

Low Positive Predictive Value
>50% FALSE POSITIVE

- Misinterpretation
- Over diagnosis
- Unnecessary dietary elimination
- Increase cost/burden
- Not a good screening test

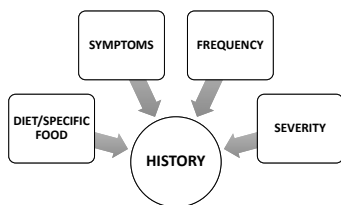
39

ALLERGEN PROFILE, FOOD-BASIC 01/19/2016 (#616225, Final, 01/15/2016)

Report	Result	Ref. Range	Units	Status	La
CLASS DESCRIPTION	COMMENT			Final	01
	LEVELS OF SPECIFIC IgE	CLASS	DESCRIPTION OF CLASS		
	< 0.10	0	NEGATIVE		
	0.10 - 0.31	0/I	SUBVOCAL/LOW		
	0.32 - 0.55	I	LOW		
	0.56 - 1.40	II	MODERATE		
	1.41 - 3.90	III	HIGH		
	3.91 - 19.00	IV	VERY HIGH		
	19.01 - 100.00	V	VERY HIGH		
	>100.00	VI	VERY HIGH		
F001-IgE EGG WHITE	<0.10	CLASS 0	KU/L	Final	01
F002-IgE MILK	<0.10	CLASS 0	KU/L	Final	01
F003-IgE CODFISH	<0.10	CLASS 0	KU/L	Final	01
F004-IgE WHEAT	<0.10	CLASS 0	KU/L	Final	01
F013-IgE PEANUT	<0.10	CLASS 0	KU/L	Final	01
F014-IgE SOYBEAN	<0.10	CLASS 0	KU/L	Final	01

40

TESTING

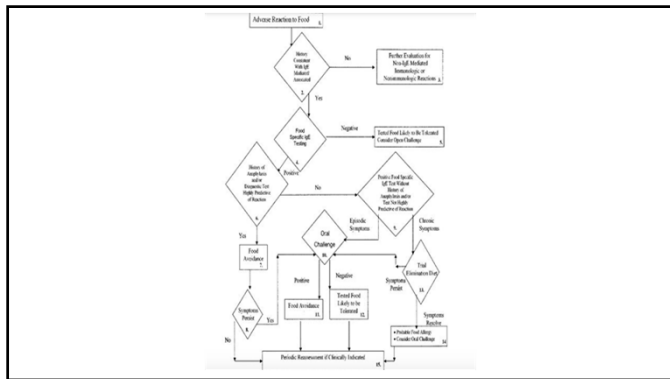


41

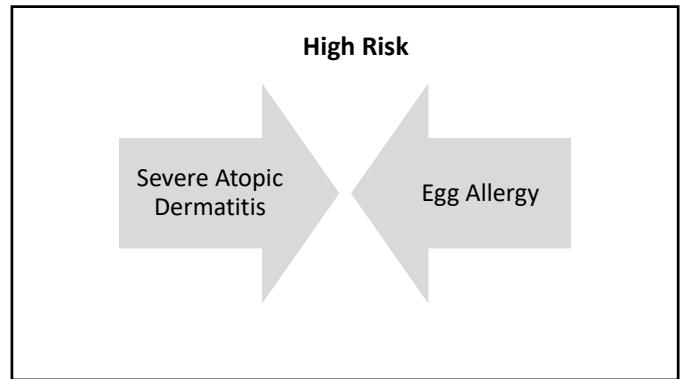
FOOD ALLERGY SIGNS AND SYMPTOMS



42



43



44

Early Peanut Introduction

- High risk infants should begin **peanut foods** between 4 and 6 months of age.
- All other infants should begin around 6 months.
- Doing so greatly decreases the risk of developing a **peanut allergy**.

45

Audience Polling Question 1

Which of the following allergies is most likely to persist from childhood into adulthood?

1. Soy
2. Milk
3. Eggs
4. Peanut

46

Audience Polling Question 2

Which of the following statements about the prevention of food allergy is TRUE?

1. A soy-based formula should be used to prevent allergy in infants at high risk.
2. Breastfeeding until an infant is at least 6 months of age will help prevent food allergy.
3. There is little evidence to support the delay of solid foods for preventing food allergy.
4. Delaying introduction of solid foods until 36 months of age will help prevent food allergy.

47

Audience Polling Question 3

Asthmatic symptoms, such as bronchospasms and/or wheezing, occur most often with exposure to

1. wheat
2. peanuts
3. seafood
4. monosodium glutamate

48

Audience Polling Question 4

What are the most common food allergies in children throughout the world?

1. Fish and shellfish
2. Cow's milk and hen's eggs
3. Sesame seed and mustard
4. Peanuts and tree nuts

49

Audience Polling Question 5

Which of the following food allergies usually begins at age 6 to 24 months and resolves in the majority of cases by 5 years old?

1. Cow's milk
2. Peanuts
3. Shellfish
4. Sesame seeds

50

THANK YOU!

51

