



Food Allergy

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 **THE OHIO STATE UNIVERSITY**
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Objectives

- Discuss the presentation and treatment of IgE mediated food allergy
- Review the exceptions to the typical presentation
- Discuss the relationship between atopic dermatitis and IgE mediated food allergy
- Discuss the presentation and treatment of non-IgE mediated food allergy



Adverse reactions to food

≠

Food Allergy



Adverse reactions to food

Food Allergy

IgE mediated

Non IgE mediated

Food intolerance

Lactose intolerance

IBS

Food sensitivity

Exacerbation of autoimmune conditions

Miscellaneous

Pharmacologic

Metabolic

Toxic

Adverse reactions to food

Food Allergy

IgE mediated

Non IgE mediated

Food intolerance

Lactose intolerance

IBS

Food sensitivity

Exacerbation of autoimmune conditions

Miscellaneous

Pharmacologic

Metabolic

Toxic

Food intolerance

Related to difficulty digesting certain foods

- Some studies have found improvement in IBS symptoms with gluten or dairy avoidance

Lactose Intolerance

- Lactase non persistence (rare in children < 5)
- Transient lactose malabsorption
- Developmental lactase deficiency

Other problems with milk...

Milk proctocolitis

GERD

Constipation

Adverse reactions to food

Food Allergy

IgE mediated

Non IgE mediated

Food intolerance

Lactose intolerance

IBS

Food sensitivity

Exacerbation of autoimmune conditions

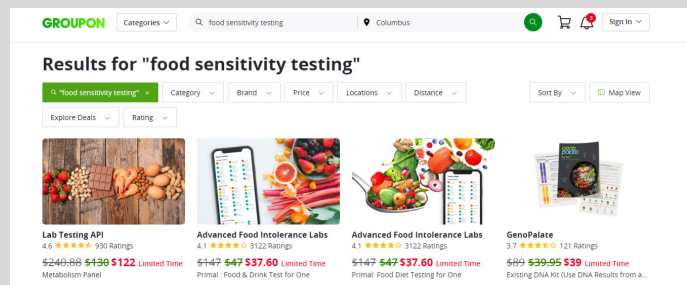
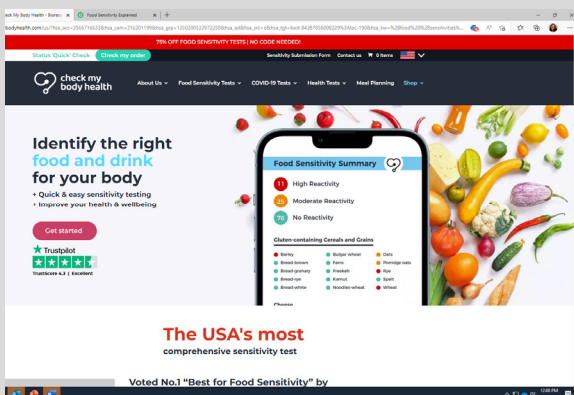
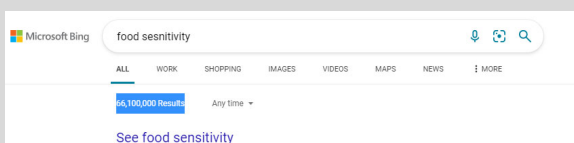
Miscellaneous

Pharmacologic


Metabolic

Toxic

Food sensitivity



Food sensitivity (cont.)


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[Register Your Kit](#)
[The Science](#)
[Help](#)
[Log In](#)
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Food Sensitivity Explained


What is food sensitivity?

We typically think of severe, rapid reactions when our bodies don't agree with the food we have consumed—like an angry bout of hives, EpiPens and anaphylactic shock. Food sensitivities are different. Unlike common food allergies, these adverse reactions can be delayed and are rarely life-threatening.

But what many people don't know is that food sensitivities can affect our health and our moods. What's more, food sensitivities are largely undiagnosed. While they may be less scary than a food allergy, these mysterious and highly individualistic food sensitivities can still make us experience unpleasant and unwanted symptoms.


Luckily, with growing awareness and food sensitivity testing capabilities, it's easier to begin the process of identifying which foods may be connected to an unwanted symptom you are experiencing.

[CHECK FOOD SENSITIVITY](#)



Food sensitivity

A food sensitivity is a diffuse and poorly understood condition that may be associated with increased levels of certain IgG class antibodies that are reactive to that food. Unlike a true food allergy, the symptoms can be delayed for a few days after ingesting the trigger food. People who have food sensitivities can go a lifetime without ever knowing they have one due to delayed reaction times and vague symptoms that mirror common ailments. Some signs that may point to a food sensitivity include bloating, migraines, and diarrhea.



Food Sensitivity Explained (everlywell.com)

Food sensitivity (cont.)

“...Food-specific IgG4 [indicates] a physiological response of the immune system after exposition to food components.... Therefore, testing of IgG4 to foods is considered as irrelevant”

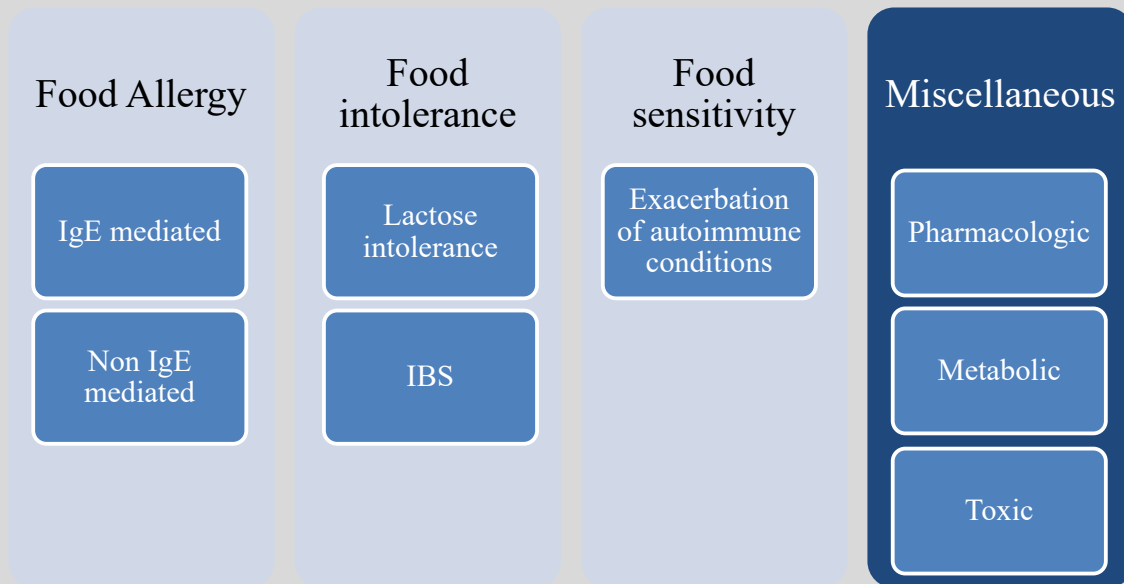
- *European Academy of Allergy and Clinical Immunology (EAACI); AAAAI*

"the presence of specific IgG to food is a marker of exposure and tolerance to food... expected in normal, healthy adults and children"

- *Canadian Society of Allergy and Clinical Immunology (CSACI)*

Stapel SO Allergy 2008; 63:793
Bock SA J Allergy Clin Immunol 2010; 125:1410.
Carr S Allergy Asthma Clin Immunol 2012; 8:12

Adverse reactions to food



Irritant Contact Dermatitis

IgE-mediated food reactions

- Reproducible with each ingestion
- Acute onset within 1-2 hours of ingestion
- Duration expected to be < 12 hours
- Symptoms should not occur without ingestion
- Suspected foods should be common causes of food allergy

Nonallergic contact reactions

- May not occur with each ingestion
- Contact with the skin is a prerequisite
- Symptoms often resolve without treatment
- Can have a long list of suspected triggers
- Suspected foods often uncommon causes of food allergy, i.e. tomatoes, berries



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4 year old with new food allergy concern

One week ago, he took a bite of a candy bar that had peanuts and spit it out telling his mother that his mouth was 'spicy'

Ate peanut at 6 months of age without any reaction



Food Allergy ?



Histaminergic

Rapid

Reproducible

Predictable



Is the story consistent?

What testing is appropriate for this child?

What anticipatory guidance is appropriate for this child?

Should this child be prescribed an epinephrine auto-injector?

Specific IgE Testing

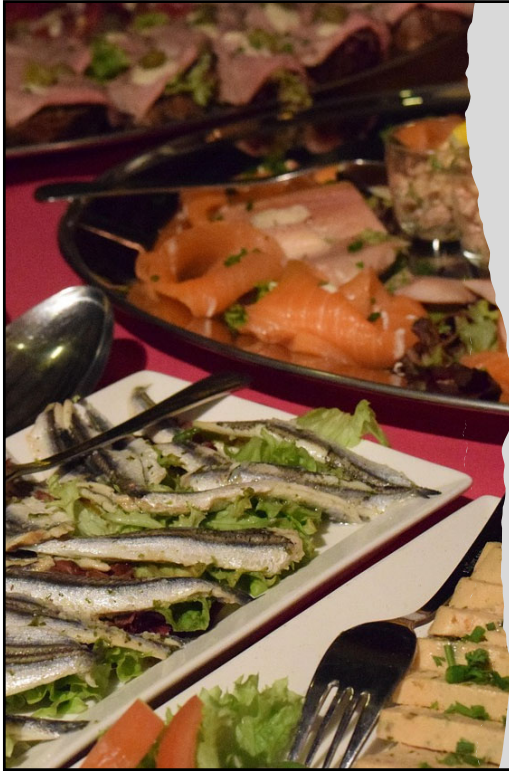
Serum Specific IgE

Skin prick testing

Positive testing \neq Allergy

No panels





Downsides to testing ?

High false positive rate

Impact on nutrition

Family anxiety

Oral food challenges (OFC)



Wait 1-2 hours

Definitive answer regarding allergy status

Positive and Negative OFC lead to improvement in QoL

Natural History of IgE Mediated Food Allergy



Thoughts about the history?

Is it anaphylaxis?

Video demonstration – Epinephrine Autoinjectors



Intranasal Epinephrine – Demonstration





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Food allergy treatment

Traditional Management

Oral Immunotherapy

Omalizumab

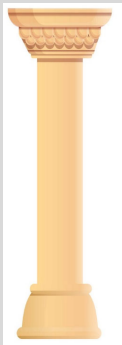
Food allergy treatment

Traditional Management

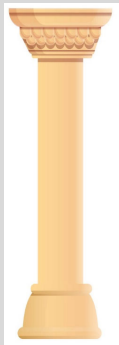
Oral Immunotherapy

Omalizumab

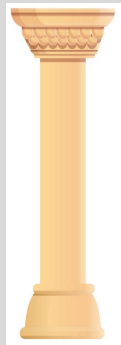
Traditional Management



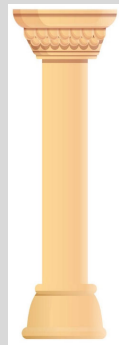
Confirm
Diagnosis



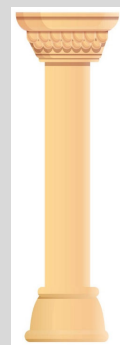
Allergen
avoidance



Epinephrine
and
emergency
action plans



Manage the
psychosocial
implications



Nutritional
Counseling



Monitor for
resolution

Food allergy treatment

Traditional Management

Oral Immunotherapy

Xolair

Food allergies could soon become a thing of the past – here's why

Allergic reactions to foods are a growing, potentially life-threatening problem. The good news is we can turn this around, says **Kari Nadeau**



HEALTH | COMMENT 10 March 2021

By **Kari Nadeau**

Philadelphia

SPONSOR CONTENT

**Got Food Allergies?
Discover a New Treatment
that Can Reverse Life-
Threatening Reactions**

July 15, 2021 / Allergies

Could There Be a Cure for Peanut Allergies in Children?

New treatment offers hope for outgrowing
the life-threatening condition

HEALTH

How Close Are We To A Cure For Food Allergies?

After years of little to no movement, science is on the cusp of big advancements in the treatment of food allergies, raising hope that a cure could be on the horizon.

Food allergies could soon become a thing of the past – here's why

Allergic reactions to foods are a growing, potentially life-threatening problem. The good news is we can turn this around, says Kari Nadeau



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Oral

Philadelphia

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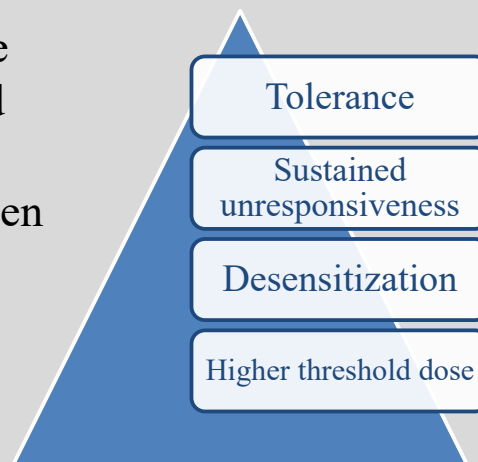
HEALTH

How Close Are We To A Cure For Food Allergies?

After years of little to no movement, science is on the cusp of big advancements in the treatment of food allergies, raising hope that a cure could be on the horizon.

Oral Immunotherapy (OIT)

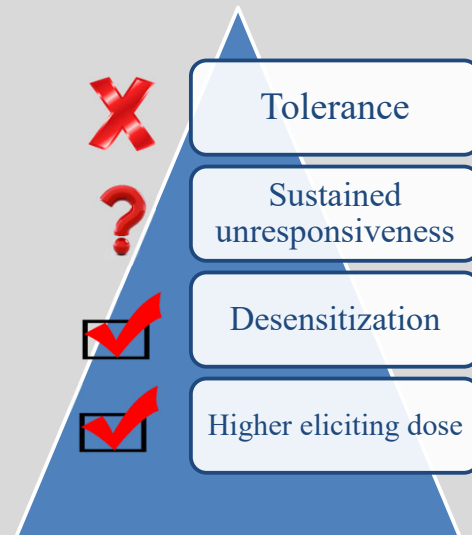
A method of modulating the immune system by repeated exposure to small and increasing amounts of antigen



Does OIT work?

Effective in achieving desensitization (60-90% patients)

Few studies show sustained unresponsiveness

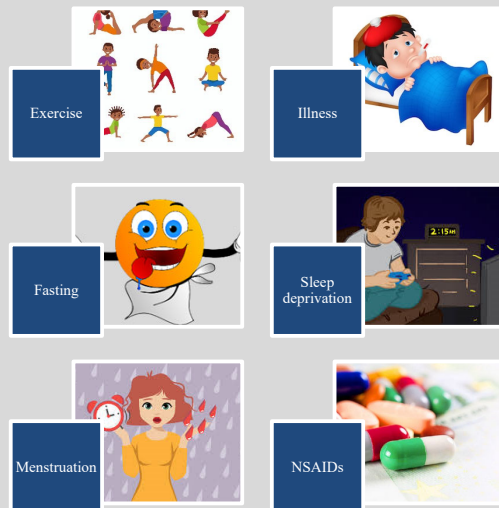


Kim EH Allergy 2020

Adverse events during peanut OIT

| | Active group | Placebo group |
|---|--|---|
| Patient withdrawal due to adverse effects | 11.6% | 2.4% |
| Risk of allergic reaction | 12% patients in clinic 14% of patients at home 23% total patients | 10% risk of accidental reaction |
| Epinephrine administration | 14% | 6.5% |
| Biopsy proven Eosinophilic Esophagitis | ~2-3% | 43-56 of 100,000 children and adults |
| GI symptoms | - 14% episodic vomiting > 2 hours after dose - 6% GI symptoms that improved with dose reduction | <p>Vickery B NEJM 2018, Mansfield LE Allergy Asthma Proc 2013 Wasserman RI J Allerg Clin Immunol Pract 2014, Nachshon L Pediatr Allergy Immunol 2018, Wasserman RI J Allerg Clin Immunol Pract 2019</p> |

Precautions during OIT



- Take dose one hour after eating a meal
- Do not up dose while sick
- Do not up dose during menstrual cycle
- Do not exercise or perform increased activity within 2 hours of a dose
- Avoid NSAID
- Avoid sleep deprivation

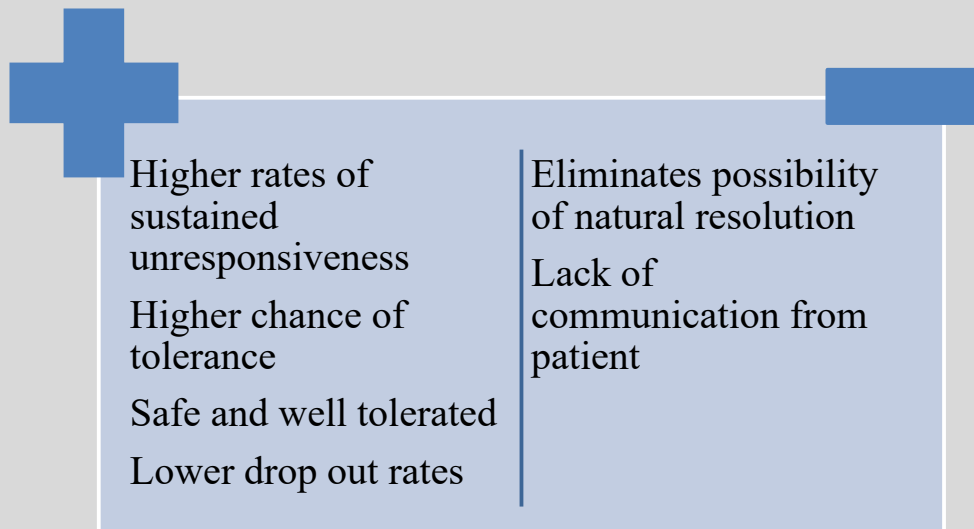
Ideal candidates for OIT

- Patients with significant quality of life impairment and social restriction that has not improved with education
- Patients with very low threshold doses that need higher levels of vigilance
- Patients with poor impulse control that are prone to accidental reactions

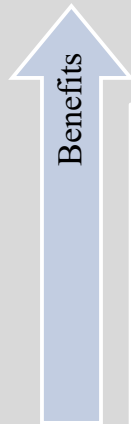
Ideal candidates for OIT

- Patients with significant quality of life impairment and social restriction that has not improved with education
- Patients with very low threshold doses that need higher levels of vigilance
- Patients with poor impulse control that are prone to accidental reactions
- Infants and toddlers with newly diagnosed peanut, tree nut or sesame allergy

Early Peanut OIT

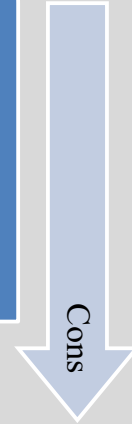


Epi-cutaneous immunotherapy



- Lower risk for systemic reactions
- Easier adherence

- Only about 50% of patients able to achieve 10x increase in eliciting dose
- Local site reactions commonly reported



Studied in milk and peanut
Peanut patch awaiting FDA approval

Sampson HA JAMA 2017

Food allergy treatment

Traditional Management

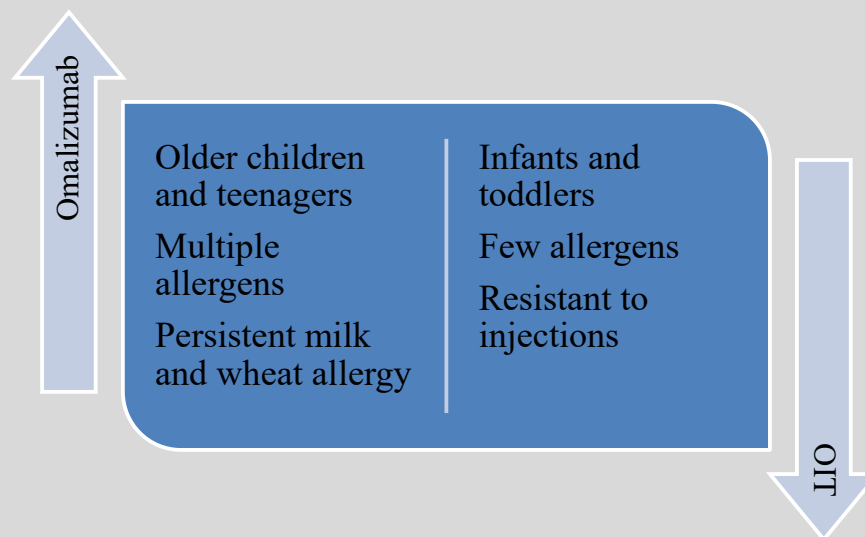
Oral Immunotherapy

Omalizumab

Omalizumab

- Monoclonal anti-IgE
- Can increase threshold dose
- Should be used in conjunction with avoidance
- May be combined with OIT
- May lead to cautious dietary expansion

Omalizumab vs OIT



Sampson HA JAMA 2017

Allergic considerations for children with Atopic Dermatitis

Can we prevent food allergy development?

Can allergies be making the eczema worse?

Food sensitization in AD

Sensitization in atopic dermatitis

- Six times higher in patients with AD than healthy controls
- Lower association with clinical reactivity in patients with AD

Prevalence

- Ranges from 30-80%

Tsakok T et al. J Allergy Clin Immunol 2016 Feb; 137(4): 1071-1077

Food sensitization in AD (cont.)

Not Food Allergy

Tsakok T et al. J Allergy Clin Immunol 2016 Feb; 137(4): 1071-1077

What came first?



Atopic
Dermatitis

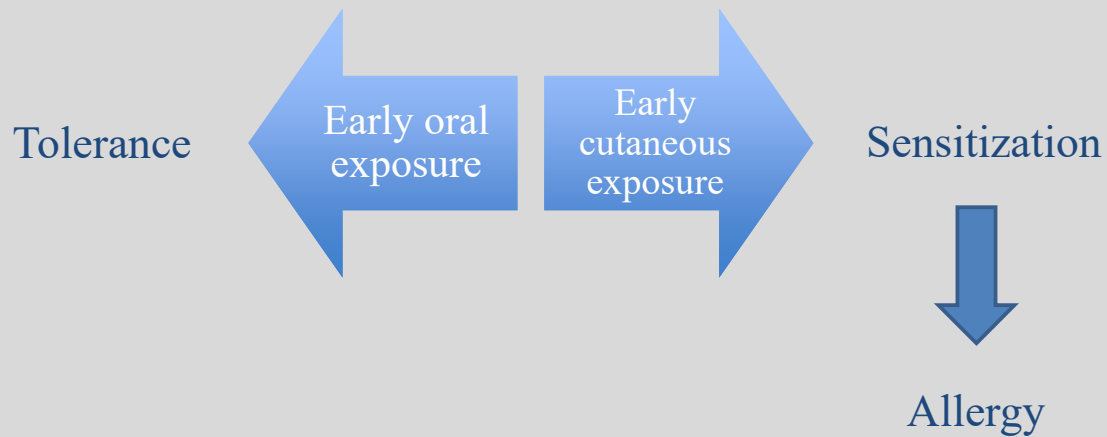


Sensitization

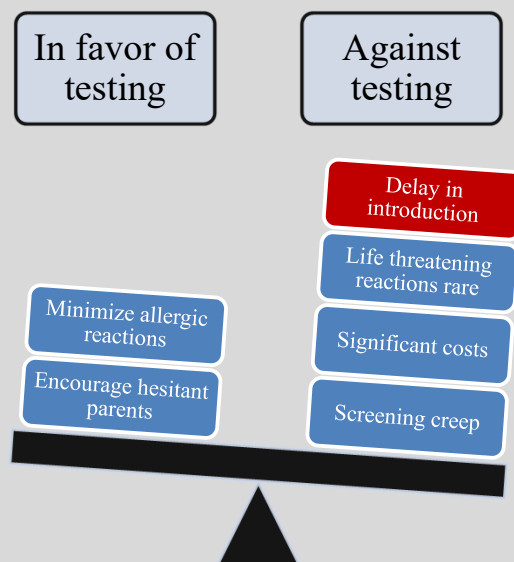


Food
Allergy

Dual Exposure Hypothesis



Do I need to test before introducing?



How should I introduce peanut

Age and
developmentally
appropriate

Minimize skin
contact

Sufficient
quantity

Maintain in diet

Allergic considerations for children with Atopic Dermatitis

Can we prevent food
allergy development?

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Case



55 yo man

Tells you that he keeps waking up at night with itching, hives, and difficulty breathing

Is it a food allergy?

What is Alpha-gal?



Limitations in Epidemiology

Helminths appear to also be able to sensitize to alpha-gal

Rates of sensitization in asymptomatic children from Ecuador (32%) and Kenya (54%)

Evidence of high rates of alpha-gal sensitization without symptoms

US military recruits

Denmark

University of Virginia

Risks of Unnecessary Avoidance



Nutritional



Anxiety



Social Withdrawal

Medications and Alpha-gal

Cetuximab and Infliximab

- Less of a concern for newer biologics
- Chinese Hamster Ovary derivation

Heparin

- Less than 5% risk

Carrageenan, Magnesium stearate

- Case reports

Case

6 month old male, mother is starting to solid foods

Mother generally breast feeds

She reports that on the two occasions that she has attempted formula, he has had vomiting

Is it a food allergy?



Vomiting started 3 hours after the formula

The vomiting was dramatic and recurrent, also had diarrhea

Mother reports that she almost called 911 because he seemed lethargic, but then he started nursing and seemed better



Food Allergy?

It is occurring reproducibly

BUT

Mainly GI symptoms?

Is three hours too delayed?



Non- IgE Mediated Food Allergy

Allergic Proctocolitis

Food Protein Induced Enterocolitis
Syndrome (FPIES)

Chronic FPIES

Intermittent vomiting
Chronic watery diarrhea
Dehydration
Weight loss
Failure to thrive

**Acute FPIES**

- Repeated vomiting 2-6 hours after ingestion
- Diarrhea only after ingestion
- Hypotension
- Hypothermia
- Dehydration



Non IgE Mediated Food Allergy

Management

Prognosis