

Not All Reactions Are Allergies: Demystifying Food Intolerance

Sterling Slocum (Kosmach), DO
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Disclosures

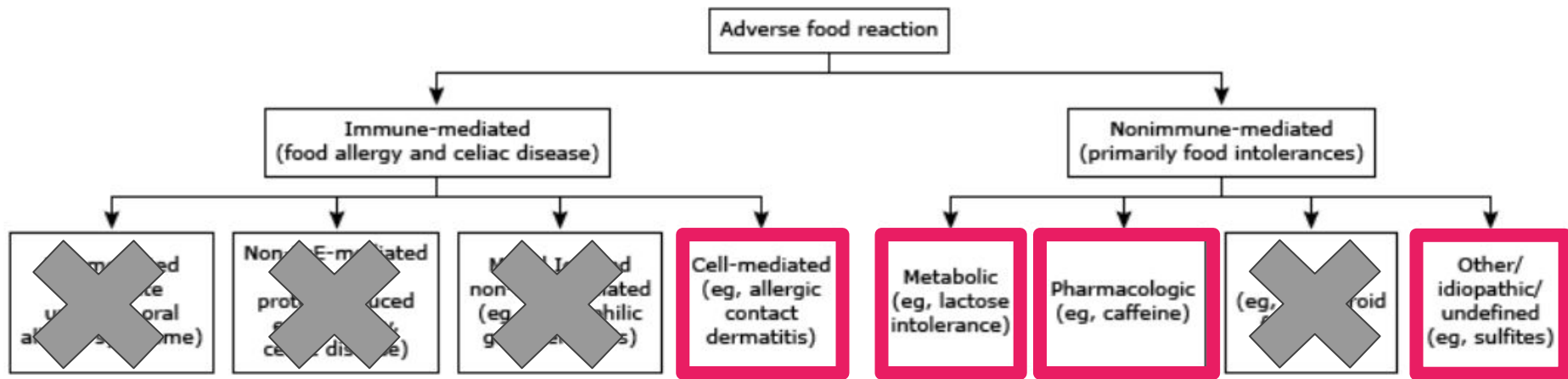
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- Blueprint Medicine: Medical Consultant & Advisory Board

Objectives

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- Overview of Adverse Food Reactions
- Non-immune mediated food reactions
- Food Triggered Cell Mediated Reactions (immune mediated)
- Treatment options for each
- Testing for food intolerance



Gastrointestinal disorders

Nonceliac gluten sensitivity

Gastroesophageal reflux

Carbohydrate malabsorption

- Lactase deficiency **(lactose intolerance)**

- Sucrose-isomaltase deficiency

Irritable bowel syndrome

Intolerance of short-chain fermentable carbohydrates (FODMAPs)

Yeast overgrowth syndrome

Pancreatic insufficiency (cystic fibrosis)

Peptic ulcer disease

Gallbladder disease

UpToDate, Adapted from: Sampson HA. Differential diagnosis in adverse reactions to foods. *J Allergy Clin Immunol* 1986; 78:212.








Non Celiac Gluten Sensitivity (NCGS)

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- **Definition:** Gluten proteins represent the major storage proteins of wheat, barley, and rye (ex- Gliadin)
- **Symptoms:**
 - Intestinal: bloating, abdominal pain, diarrhea, nausea, aphthous stomatitis, alternating bowel habits
 - Extra intestinal: “brain fog”, fatigue, headache, anxiety, joint pain, rashes.
- **Diagnosis:**
 - Confirmed only by gluten withdrawal and double-blind placebo challenge protocols (rarely performed)
 - No reliable biomarker to confirm this diagnosis.
 - Overlap in symptoms between NCGS and other functional GI disorders such as IBS
 - Rule out celiac disease
 - Rule out IgE mediated wheat allergy
- **Treatment:**
 - Treat empirically for GERD with 1 month of PPI (for primary GI symptoms)
 - Trial 4 weeks of complete gluten elimination diet
 - similar symptomatic improvement with 2 weeks of gluten elimination compared to a low-FODMAP diet
 - Keep food and symptom diary

FODMAP(s): Fermentable Oligosaccharides, Disaccharides, Monosaccharides And Polyols

| High FODMAP Foods | |
|---|---|
|  | Vegetables Artichoke, asparagus, cauliflower, garlic, green peas, mushrooms, onion, sugar snap peas |
|  | Fruits Apples, apple juice, cherries, dried fruit, mango, nectarines, peaches, pears, plums, watermelon |
|  | Dairy & alternatives Milk, ice cream, soy milk (made from whole soybeans), sweetened condensed milk, yogurt |
|  | Protein sources Legumes, some marinated meats/poultry/seafood, some processed meats |
|  | Breads & cereals Wheat/rye/barley based breads, breakfast cereals, biscuits and snack products |
|  | Sugars & sweeteners High fructose corn syrup, honey, sugar free confectionery |
|  | Nuts & seeds Cashews, pistachios |

- Symptoms: gas, bloating, abdominal pain, diarrhea or constipation,
- Beneficial in patients w/ IBS, SIBO, NCGS
- Often managed by GI with help of Nutrition
- Elimination phase:
~ 2-6 wks
- Reintroduction Phase:
~ 8 wks

<https://my.clevelandclinic.org/health/treatments/22466-low-fodmap-diet>

| Low FODMAP Alternatives | |
|--|---|
|  | Vegetables Eggplant, green beans, bok choy, bell pepper, carrots, cucumber, lettuce, potato, tomato, zucchini |
|  | Fruits Cantaloupe, grapes, kiwi fruit, mandarin, orange, pineapple, strawberries |
|  | Dairy & alternatives Almond milk, brie/camembert cheese, feta cheese, hard cheeses, lactose-free milk, soy milk (made from soy protein) |
|  | Protein sources Eggs, firm tofu, meats/poultry/seafood (marinated in lemon juice with olive oil, black pepper or Italian herbs), tempeh |
|  | Breads & cereals Corn flakes, oats, rice cakes (plain), sourdough spelt bread, wheat/rye/barley free breads |
|  | Sugars & sweeteners Dark chocolate, maple syrup, rice malt syrup, table sugar |
|  | Nuts & seeds Macadamias, peanuts, pumpkin seeds, walnuts |

Intolerances

Pharmacologic agents

- Caffeine : anxiety, jitters, headaches, insomnia, rapid heart rate, nausea, dizziness
- Theobromine (tea, chocolate) : headaches, digestive issues, anxiety, rash
- Histamine and histamine-like compounds (berries, wine, fish, sauerkraut)
- Tryptamine (tomato, plum)
- Tyramine (aged cheeses, pickled fish) : deficiency in MAO, sx's = HA, GI sx's, anxiety, rash
- Serotonin: (turkey, pumpkin seeds, banana, tomato) contain tryptophan, a precursor to serotonin
- Phenylethylamine (chocolate) : can mimic the stimulant effects of amphetamines
- Glycosidal alkaloid solanine: unable to breakdown solanine, found in nightshade plants
- Alcohol : Aldehyde dehydrogenase deficiency – presents as flushing

Flavorings and preservatives

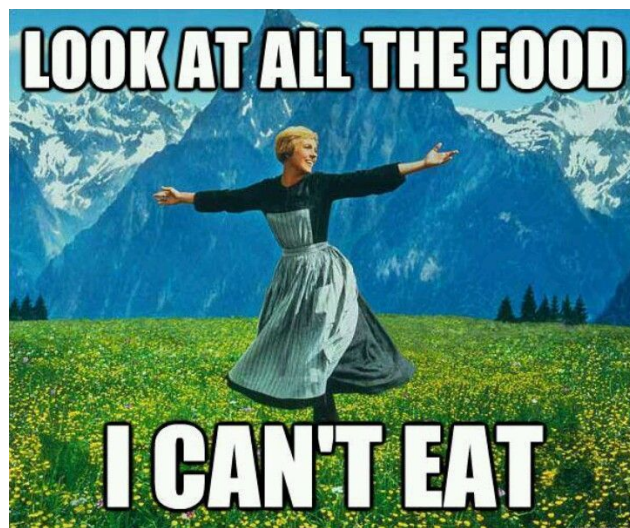
- Sodium metabisulfite : in patients with severe asthma can cause wheezing
- Monosodium glutamate : flushing, HA, muscle aches, numbness/burning of mouth

**I'M A LACTOSE
INTOLERANT
LIVING THE
MILKY
WAY
NOTHING
CAN
STOP ME!**

*UpToDate, Adapted from: Sampson HA.
Differential diagnosis in adverse reactions to
foods. J Allergy Clin Immunol 1986; 78:212.*

Histamine Intolerance

- **Definition:** Inability to properly breakdown dietary histamine
 - A controversial diagnosis!
- **Symptoms:**
 - Flushing, itching, headache, nausea/vomiting, diarrhea, rash (hives)
- **Treatment:**
 - Cromolyn (mast cell stabilizer) 100-200mg taken 20-30min before meals
 - Non-sedating H1 and H2 antihistamines
 - DAO enzyme supplements- to enhance intestinal histamine degradation
 - Supplementation with DAO cofactors: Vitamin C, Vitamin B6
 - Consider GI referral, an underlying GI disorder could be the root cause of reduced DAO function
 - Low Histamine Diet



Low Histamine Diet

General pointers:

- Avoid or reduce eating canned foods and ready meals
- Avoid or reduce eating ripened and fermented foods (older cheeses, alcoholic drinks, products containing yeast, stale fish)
- Histamine levels in foods vary, depending on how ripe, matured or hygienic the foods are
- As much as it is possible, only buy and eat fresh products
- Don't allow foods to linger outside the refrigerator – especially meat products

Foods with lower histamine levels:

- Fresh meat (cooled, frozen or fresh)
- Certain fresh/frozen fish – hake, trout, plaice
- Chicken (cooled, frozen or fresh)
- Egg
- Fresh fruits – with the exception of plantains
- Fresh vegetables – with the exception of tomatoes, eggplant and spinach
- Grains – including rice noodles, white bread, rye bread, rice crisp bread, oats, puffed rice crackers, millet flour, pasta
- Fresh pasteurised milk and milk products
- Milk substitutes – goat milk, sheep milk
- Cream cheese, mozzarella, butter, (without the histamine generating rancidity)
- Most cooking oils – check suitability before use
- Most leafy herbs – check suitability before use
- Most fruit juices without citrus fruits
- Herbal teas – with the exception of those listed below

Foods with higher levels of histamine:

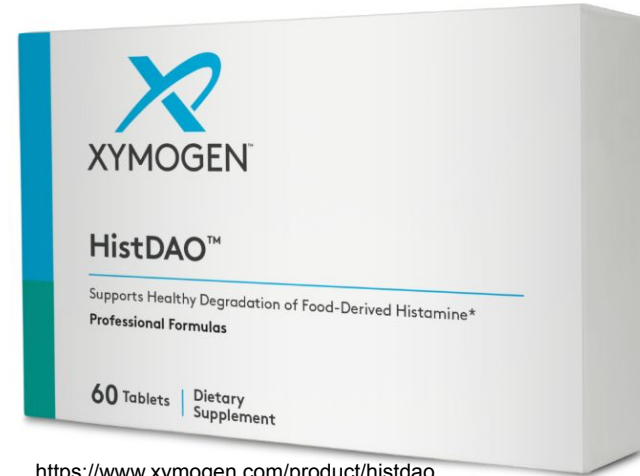
- Alcohol
- Eggplant
- Pickled or canned foods – sauerkrauts
- Matured cheeses
- Smoked meat products – salami, ham, sausages....
- Shellfish
- Beans and pulses – chickpeas, soy flour
- Long-stored nuts – e.g peanuts, cashew nuts, almonds, pistachio
- Chocolates and other cocoa based products
- Seitan
- Rice vinegar
- Ready meals
- Salty snacks, sweets with preservatives and artificial colourings

Foods with histamine releasers:

- Most citrus fruits – lemon, lime, oranges...
- Cocoa and chocolate
- Walnuts, peanuts
- Papaya, pineapples, plums, kiwi and bananas
- Legumes
- Tomatoes
- Wheat germ
- Most vinegars
- Additives – benzoate, sulphites, nitrites, glutamate, food dyes

Foods that DAO enzyme:

- Alcohol
- Black tea



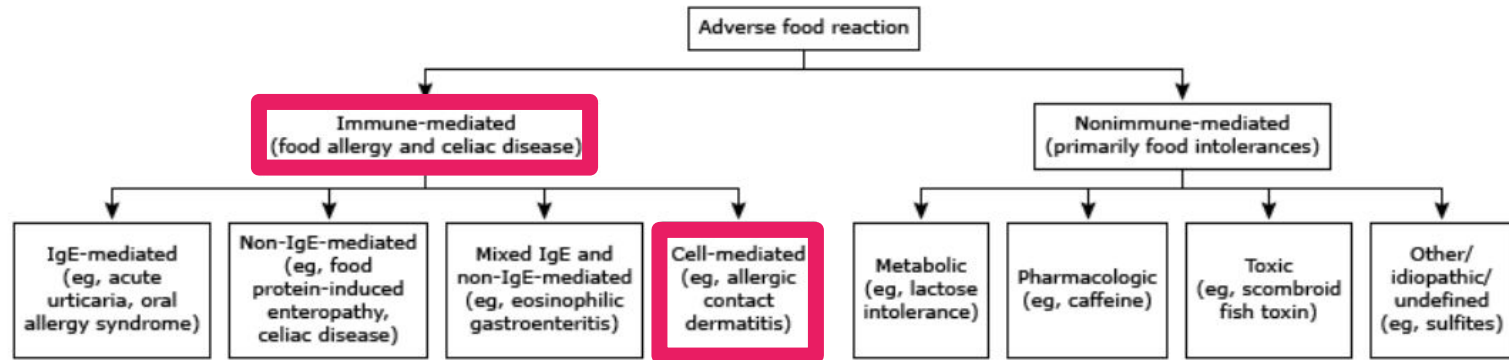
<https://www.xymogen.com/product/histdao>

Dietary triggers for migraine headache

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|----------------------------|
| Alcohol |
| Chocolate |
| Aged cheeses |
| Monosodium glutamate (MSG) |
| Aspartame (NutraSweet) |
| Caffeine |
| Nuts |
| Nitrites, nitrates |

Food Triggered Cell Mediated Reactions

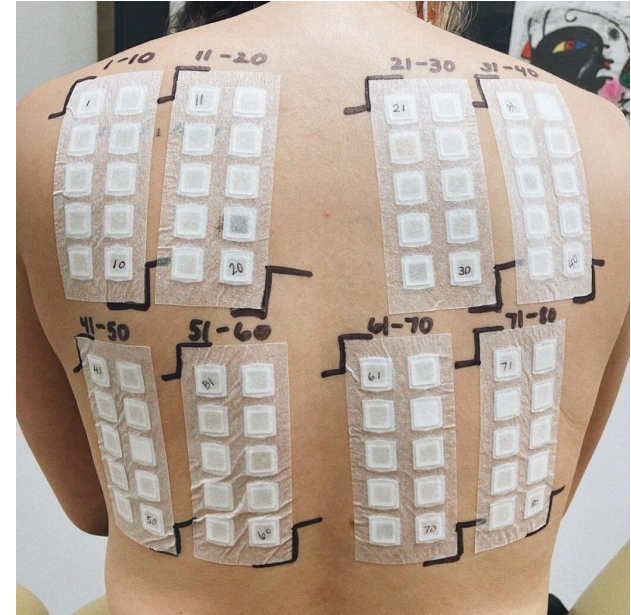
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Food Triggered Cell Mediated Reactions AKA: “Systemic Contact Dermatitis”

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- **Definition:**
 - When eating a **food containing a known contact allergen** causes a widespread skin reaction
 - Delayed Type IV hypersensitivity reaction
- **Symptoms:**
 - Cutaneous reactions may occur within hours or days following allergen ingestion
- **Diagnosis/Treatment:**
 - Patch Testing
 - No laboratory test is available to determine if a patient with ACD is also affected by SCD.
 - If a patient with ACD to a well-recognized dietary allergen does not improve upon avoidance of cutaneous contact, dietary avoidance would be recommended for a period of 6 to 8 weeks.

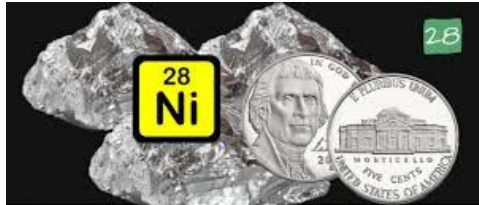


<https://www.newportbeachdps.com/patch-testing-the-basics-robin-lewallan-m-d-board-certified-dermatologist/>

SCD: Nickel

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The absorption of nickel can be **enhanced** by iron deficiency and thus, an individual with iron deficiency anemia tends to retain more nickel from the diet.



Grains

- Avoid: Whole wheat foods and oats
- May Eat: Rice, corn, rye

Vegetables

- Avoid: Beans, lentils, peas, soybeans, spinach, kale, lettuce, canned vegetables, vegetable juices
- May Eat: Other fresh or frozen vegetables

Fruits

- Avoid: Dates, figs, pineapples, plums, raspberries, canned fruits
- May Eat: Other fresh or frozen fruits

Meats

- Avoid: Shellfish, processed meats with coatings or fillers, canned meats or fish
- May Eat: Beef, chicken, fish, turkey, eggs

Other Sources to Avoid

- Chocolate, all nuts, all seeds, black tea, commercial salad dressings, multivitamins that contain nickel, tinned or canned food items, stainless steel or nickel coated cast iron pans.

SCD: Propolis

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- **Propolis** = (bee glue) a resin-like material collected by honeybees from the buds of plants, used to seal and protect the bee hives and protect bees from diseases by reducing the growth of microbes on the hive walls.
 - Raw propolis is mostly composed of 50% plant resins, 30% waxes, 10% essential and aromatic oils, **5% pollens**
- **What is it used for in humans?**
 - antitumor and anti-inflammatory agents
 - wound care
 - “natural” allergy treatments
 - contains nutrients that inhibit the synthesis and release of Th2 type cytokines (IL-4 and IL-13)
- **Reactions:** allergic stomatitis with labial edema, contact cheilitis, acute or delayed oral lesions, cutaneous eruption, lung dysfunction, allergy, and contact dermatitis

- “color added,”
- “artificial color,”
- “artificial color added.”



AVOID/CAUTION:

- Sausages and hot dogs
- Hams and deli meats
- Seasonings and condiments: red-colored marinades, sauces, and some spice blends
- Fruit juices and drinks
- Alcoholic beverages: Some red-colored liqueurs and cocktails
- Strawberry, raspberry, cherry, and other red or pink-hued yogurts, ice creams, sorbets and sherbets
- Gummy candies
- Red lollipops: even “natural” flavors like strawberry or watermelon may use red dye for extra color.
- Chocolates: Don’t be fooled by a pink or reddish chocolate coating! Carmine can be used in both milk and dark chocolate to achieve specific shades.
- Sprinkles

Other known triggers for Systemic Contact Dermatitis

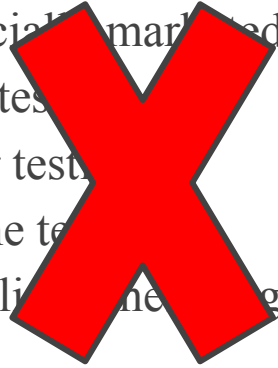
- **Balsam of Peru:** from the *Myroxylon balsamum pereirae* tree
 - Includes chemicals such as cinnamates and vanillin that are related to or are found in flavorings and spices
 - Commonly found in fragrances
 - One of the most common allergens in North America.
 - Foods to avoid: citrus fruits, tomatoes, chocolate, colas, and certain spices (cinnamon, vanilla, cloves)
 - Be careful with baked goods, certain condiments, and certain liquors.
- **Propylene Glycol:**
 - found in skin and hair care products, topical medications, anti-freeze and brake fluid as well as some artificial food products
 - many packaged and fast-food items, used as a thickener, preservative, and moisture-retaining agent
- **Formaldehyde:**
 - formaldehyde is a breakdown product of ingested aspartame (an artificial sweetener)



Testing for Food Intolerance

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- Food and Symptom Diary!
- Avoidance and reintroduction!
- Commercially marketed sensitivity testing
 - IgE tests
 - Hair tests
 - Urine tests
 - Applied kinesiology/muscle testing



What About Skin Prick Testing???

SENSITIZATION

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ALLERGY

Summary

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- Not a ton of research out there about food intolerance
- A lot of discussion, trial and error
- Food and Symptom Diary!!!
- Don't forget to rule out underlying GI conditions
- Discuss what food skin and blood testing actually tells us, I don't say no to testing, I just make sure they understand its not going to give us all the answers and may cause more confusion.
- Trial HistDAO, low histamine diet, anti-inflammatory/autoimmune diet
- Labs...
- Possible food challenges
- OAS, Chronic nausea from PND → work up for environmental allergies
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End of Presentation

ANY QUESTIONS?

memecreator.org