



FLCCCC[®]
A L L I A N C E

**Your Ultimate Guide to
Allergens, Intolerances,
Seasonal Allergies
and Histamine**

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This guide aims to help people identify and treat common allergies and intolerances. There are many ways to improve the body's response to triggers that cause inflammation. It starts with finding the problem and making dietary and lifestyle changes to restore balance. If these steps don't solve the issue, there are other therapies and treatments to try before resorting to conventional remedies. Authors Dr. Kristina Carman and Kristina Morros, CRNA have provided a step-by-step approach to managing allergens and intolerances in this guide. For more information on supplements, low histamine diets, and lifestyle tips, visit the [FLCCC Tools and Guides section](#) on the [FLCCC website](#).

See the list below for a few of our other guides:

- [From A to Zinc: The FLCCC Nutrient Guide](#)
- [What is a Low Histamine Diet? Your Path to Health](#)
- [20+ Daily Things To Improve Your Health](#)



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Introduction

Guide to allergens, intolerances, and digestive diseases

Adverse food reactions occur when the body exhibits an abnormal response following food consumption. These reactions encompass food hypersensitivity, which comprises food intolerance and food allergy. The three primary types of adverse food reactions are food allergy, food sensitivity, and food intolerance. These can further be classified into immune mediated reactions and non-immune mediated reactions.

Immune mediated reactions (involves chemical mediator release)

Food Allergy

- Type 1 hypersensitivity reaction
- Anaphylaxis

Food Sensitivity

- Non-Type 1 hypersensitivity response
- "Any other immune-mediated (non-Type 1 hypersensitivity) reaction"
- Does not pose a life-threatening risk

Non-Immune mediated reactions (doesn't involve chemical mediator release)

Food Intolerance

- e.g. lactose intolerance, bile salt deficiency, etc.
- Different underlying causes between food allergy and food intolerance lead to specific ways to diagnose and treat them, based on their immune system involvement.

Facts

Food allergies

- Food allergies affect around 1-2% of adults and fewer than 10% of children, with varying prevalence.

Food intolerances

- Food intolerances are estimated to affect approximately 20% of the population. The diagnosis and management of food intolerances pose a complex challenge due to their varied presentations and involvement of non-immunological mechanisms.
- The diagnosis of food intolerance, despite its widespread occurrence, presents difficulties as it requires identification of the diverse clinical symptoms, considering factors like symptom severity and onset timing. Moreover, the intricacy is compounded by the various mechanisms of food intolerance, encompassing pharmacological, enzyme deficiencies, and non-specific gastrointestinal (GI) issues.

Celiac disease

- Celiac disease affects about 1 in 100 people worldwide.
- In the United States, an estimated 2.5 million individuals remain undiagnosed, exposing them to potential long-term health complications.
- Individuals with a first-degree relative (parent, child, sibling) who has celiac disease face a 1 in 10 risk of developing the condition.
- Untreated celiac disease can lead to the onset of various autoimmune disorders such as Type 1 diabetes, multiple sclerosis (MS), dermatitis herpetiformis, anemia, infertility, miscarriage, heart disease, and intestinal cancers.



Food Allergy

What is a food allergy?

When you have a food allergy, your immune system responds to a substance in food, typically a protein, that it perceives as harmful. This triggers a series of reactions in your body, leading to symptoms that can appear quickly and vary from mild (like itchy eyes, runny nose, etc.) to severe, and in some cases, life-threatening.

A food allergy is a negative health outcome resulting from a particular immune reaction that consistently happens upon consuming a specific food.

- Exposure to a specific protein triggers the production of an immunoglobulin E antibody in the body, leading to a variety of symptoms that can differ in their timing and intensity.
- While over 170 foods have been linked to IgE-mediated reactions, eight foods, including eggs, milk, peanuts, tree nuts, wheat, fish, crustacean shellfish, and soy, are accountable for 90 percent of all food allergies.

Diagnosis/treatment

If a food allergy is suspected, an in-depth medical history and physical examination should be performed by the provider. A **Skin Prick Test** may be used to assist in the identification of foods that may provoke a reaction but should not be used alone to diagnose a food allergy. The double-blind, placebo-controlled food challenge is considered the gold standard for diagnosing food allergies.

- **Skin testing** (poor for food allergies; 40% positive predictive value; poor in identifying food sensitivities)
- **IgE RAST and ELISA testing** (more accurate for food allergy [60% accuracy] vs. food sensitivity)



Food Intolerance

What is a food intolerance?

Food intolerance differs from food allergies as it stems from various causes. An intolerance arises when the body struggles to digest a specific component of a food, such as lactose. While symptoms like abdominal cramping, diarrhea, or flatulence can be uncomfortable, they are not life-threatening. It is a non-immunological reaction triggered by a food or its component at a typically tolerated dose, and it constitutes the majority of adverse food reactions.

Lactose and dairy intolerance

- Lactase, the enzyme accountable for lactose breakdown, predominates in dairy products.
- Ingestion of dairy fosters hydrogen gas (and at times methane) production, culminating in bloating, gas, distension, and abdominal unease.
- Moreover, dairy consumption can instigate lactic acid generation, prompting loose stools and diarrhea.
- Managing this condition involves abstaining from dairy, selecting lactase-treated dairy items, or utilizing enzyme supplements containing lactase.

Diagnosis/treatment

Hydrogen Breath Test: Commonly used for diagnosing lactose intolerance and some other carbohydrate intolerances like fructose intolerance, this test measures hydrogen levels in the breath after consuming a lactose-containing drink. **Increased hydrogen levels indicate improper digestion of lactose.**



Food Sensitivities

What is a food sensitivity?

Food sensitivities and food-chemical sensitivities represent complex non-allergic and non-celiac inflammatory responses that can activate both innate and adaptive immune pathways.

Within a spectrum of chronic inflammatory conditions, food sensitivities emerge as a significant source of inflammation and symptoms, presenting a notable challenge from a clinical perspective.

These sensitivities have potential ties to inflammation in conditions such as **irritable bowel syndrome (IBS), migraines, fibromyalgia, arthritis, gastroesophageal reflux disease (GERD), obesity, metabolic syndrome, and attention deficit disorder/hyperactivity disorder (ADD/ADHD).**

Diagnosis/treatment

Identifying trigger foods can prove challenging due to the clinical characteristics of food sensitivities. Symptoms may manifest hours after consumption, reactions can vary based on quantity, and multiple foods and food-chemicals may trigger reactions due to compromised oral tolerance mechanisms. **Surprisingly, even foods typically considered anti-inflammatory, like salmon, parsley, turmeric, ginger, blueberries, and other ostensibly "healthy" choices, can elicit adverse reactions.**

Differences Between IgE and IgG Reactions

IgE-Mediated Reactions: Typical Allergies

Mechanism:

- IgE antibodies develop in response to allergens such as pollen, pet dander, or certain foods.
- This reaction is usually immediate, occurring within minutes of exposure to the allergen.

Symptoms:

- Common symptoms include hives, itching, swelling, redness, respiratory problems (such as asthma), and gastrointestinal discomfort.
- Severe reactions can lead to **anaphylaxis**, a critical condition requiring immediate medical attention and may include difficulty breathing, a sharp drop in blood pressure, dizziness, and loss of consciousness.

Examples:

- Seasonal allergies (e.g., hay fever)
- Specific food allergies (e.g., peanuts or shellfish)
- Reactions to insect stings

Differences Between IgE and IgG Reactions

IgG Reactions: Food Sensitivities

Mechanism:

IgG antibodies, the most prevalent type, can bind to various pathogens for longer durations, often related to food sensitivities. IgG-mediated reactions can be delayed, sometimes appearing hours or days later.

Symptoms:

Symptoms are generally less severe and can include chronic issues like headaches, digestive discomfort (such as bloating or gas), joint pain, fatigue, and skin problems like eczema.

These reactions are usually not life-threatening but can cause ongoing discomfort and chronic health problems.

Examples:

Sensitivities to certain foods like dairy, gluten, or specific additives.

Key Differences between IgE and IgG Reactions

Speed of Reaction: IgE reactions are immediate and severe, while IgG reactions are delayed and typically less severe.

Type of Symptoms: IgE reactions lead to acute allergic symptoms, while IgG reactions result in chronic, less specific symptoms.

Life-Threatening Potential: IgE reactions can be life-threatening, whereas IgG reactions are generally not.

Diagnostic Testing: IgE allergies can be identified through skin prick tests and specific IgE blood tests, while IgG sensitivities are often diagnosed through elimination diets and specific IgG blood tests.

Treatment and Management: IgE-mediated allergies may require trigger avoidance, emergency medications like epinephrine, and potentially immunotherapy. Managing IgG sensitivities often involves dietary adjustments and addressing underlying health concerns.



Celiac Disease

What is celiac disease?

Celiac disease, an autoimmune disorder, impacts individuals with a genetic susceptibility, leading to damage in the small intestine upon gluten ingestion.

- Upon gluten consumption, the immune system responds by attacking the small intestine, resulting in harm to the villi, essential for nutrient absorption. This impedes the body's ability to absorb nutrients effectively.
- While sharing similarities with food allergies in terms of immune system response, celiac disease symptoms encompass more than just gastrointestinal issues, extending to non-digestive symptoms such as joint pain and headaches.
- Unlike food allergies, anaphylaxis is not a common concern for individuals with celiac disease.
- The onset of the disease can occur at any age following the intake of gluten-containing foods or medications.
- Left untreated, celiac disease can lead to significant health complications.

Diagnosis/treatment

- The treatment for celiac disease conventionally has been an adherence to a strict gluten-free diet. However, some have had success with alternative treatments
- Avoid: foods with wheat, rye and barley (e.g. bread and beer)
- Non-celiac gluten sensitivity (NCGS): some individuals may experience symptoms similar to those of celiac disease despite testing negative for it, due to their consumption of gluten. An elimination diet is typically advised.



Common Allergens

Over 170 foods are identified as triggers for food allergies. Yet, eight specific foods are responsible for 90% of allergic reactions in the American population:

Milk

- Milk is a common allergen worldwide, especially in infants.
- Allergy prevalence in early childhood is 2-6%, decreasing in 90% of cases by age 6 and affecting fewer adults.
- Casein, a protein present in milk and its derivatives, can cause allergies.
- Milk intolerance is often due to a genetic inability to digest lactose.
- Milk protein allergies manifest diverse symptoms in the gastrointestinal tract, skin, and airways shortly after consumption.
- The widespread use of cow's milk in various processed foods poses a challenge for those allergic to milk.

Discover terms that signal presence:

- Milk, milk solids, non-fat milk solids, milk powder
- Yogurt, kefir
- Whey
- Cream, sour cream, whipped cream
- Lactose, lactalbumin, lactoglobulin, hydrolysates
- Cheese, cream cheese, cottage cheese
- Butter, artificial butter flavor, butterfat, ghee
- Buttermilk, buttermilk solids
- Casein, caseinate, sodium caseinate, rennet casein, hydrolyzed casein



Eggs

Eggs

- Allergies to eggs commonly show symptoms through digestive system reactions.
- Egg allergy primarily involves proteins from egg whites, with egg yolks less frequently causing allergic responses.
- Even after heating, most egg white allergens remain allergenic. People sensitized to hen's eggs often react to eggs from other species.
- Those with egg allergies should steer clear of common egg-based foods and may also need to avoid a variety of products like baked goods, mayonnaise, salad dressings, cosmetics, and certain medical items such as vaccines and hair-care products.

Found in/terms to indicate presence:

- Albumin
- Egg (protein, white, dried, powdered, yolk)
- Globulin
- Lecithin
- Livetin, lysozyme
- Mayonnaise
- Meringue
- Ovalbumin
- Ovomuroid
- Ovomucin
- Vitellin, ovovitellin



Peanuts

Peanuts

- Recent research indicates that peanut allergies impact approximately 1% of children and 0.6% of adults in the United States.
- The symptoms of peanut allergies can vary from mild and localized reactions (such as in the mouth) to severe systemic responses (like asthma, anaphylaxis) that demand immediate medical attention.
- Peanut was the initial food item to undergo a thorough analysis to determine threshold doses which was reported to be less than 1 mg.
- An average peanut weighs between 500-1000 mg. This implies that just 1/1000th of a peanut can provoke a reaction in certain individuals.
- Variations in threshold doses could be linked to how the peanuts are prepared.

Terms used to show presence:

- Peanuts

Tree Nuts

Tree nuts such as almonds, walnuts, and cashews

- Nuts are among the most crucial allergen groups globally, such as Brazil nuts, chestnuts, hazelnuts, pine nuts, and walnuts. Some fruits and legumes like almonds, pecans, coconuts, and cashews are commonly categorized as nuts.
- Nuts are recognized as highly allergenic foods due to the small quantity needed to provoke a reaction and the severity of responses. Allergies often manifest with severe multi-systemic and respiratory symptoms, occasionally leading to fatal anaphylactic reactions, with skin reactions being the most common.
- The allergens causing nut allergies consist of seed storage proteins (vicilins, legumins, albumins), plant defense-related proteins, and profilins.
- While it may be feasible to avoid nut-containing food items, managing cross-contamination in processed foods can be challenging.
- Given that even tiny amounts of nuts and peanuts can trigger adverse reactions, strict avoidance is crucial.

Keywords to signal presence:

- Almonds
- Brazil nuts
- Cashews
- Chestnuts
- Filberts/hazelnuts
- Macadamia nuts
- Pecans
- Pine nuts, pinole, pignoli, pinon
- Pistachios
- Walnuts



Fish

Fish (including pollock, salmon, cod, tuna, snapper, eel, and tilapia)

- Commonly observed symptoms of allergic reactions to fish are skin and gastrointestinal reactions occurring shortly after ingestion.
- Occasionally, severe systemic reactions including anaphylactic shock are observed.
- Most allergic reactions are caused by the fish muscle protein parvalbumin. Parvalbumin retains its allergenicity even after heating and avoidance of fish-containing foods is essential for sensitive individuals.
- Fish is often present in processed foods such as garnishes, sauces, and soups.

Terms indicating presence:

- | | | | |
|-------------|-----------|-------------|-------------|
| • Anchovies | • Pike | • Haddock | • Snapper |
| • Bass | • Pollock | • Halibut | • Swordfish |
| • Catfish | • Salmon | • Herring | • Tilapia |
| • Flounder | • Scrod | • Mahi mahi | • Trout |
| • Grouper | • Sole | • Perch | • Tuna |

Shellfish

Shellfish (including shrimp, lobster & crab)

- Allergies to crustacean and molluscan shellfish seems to predominantly affect older children and adults, especially in regions with a high rate of consumption.
- Symptoms of crustacean and molluscan shellfish allergy range from mild local reactions in the oral cavity to severe life-threatening systemic reactions. Occasionally, gastrointestinal and respiratory symptoms occur.
- Since shellfish retains its allergenic potential even after heating, avoidance of all forms of shellfish is essential.
- Crustacean shellfish may be present in some processed instant foods such as pizza and salad dressings.
- The major allergen of molluscan shellfish is tropomyosin.
- Individuals developing allergic reactions to one mollusc species often react to other species as well.

Keywords to Show Presence:

Crustaceans:

- Crab
- Crawfish, crayfish, ecrevisse
- Lobster, langouste, langoustine, scampo, coral, tamalley
- Shrimp, prawns, crevettes

Mollusks:

- Bivalves
 - Oysters, mussels, scallops
- Cephalopods
 - Squids, octopuses
- Gastropods
 - Abalone, limpets, land and marine snails, whelks
- Clam
- Cockle



Soy Products

Soy

- Soybeans and their derivatives are prevalent ingredients in a wide array of food products, including tofu, emulsifiers, and texturizers.
- Allergic responses to soybeans exhibit parallels to peanut allergies, encompassing mild to severe manifestations that could pose life-threatening risks.

Found in/terms to indicate presence:

- Edamame
- Hydrolyzed soy protein
- Miso (fermented soy)
- Natto
- Shoyu
- Soy fiber, flour, grits, nuts, powder
- Soy butter, cheese, ice cream, milk, yogurt
- Soy protein isolate
- Soy sauce
- Tamai
- Tempeh
- Textured soy flour (TSF), textured soy protein (TSP), textured vegetable protein (TVP)
- Tofu (silken, firm, dried)
- Soy lecithin

Wheat

Wheat

- Allergic reactions to wheat and other grains are frequently observed in infants, often resolving within the initial weeks of life.
- Wheat allergies can also manifest as baker's asthma, resulting from exposure to grain flour dust, and, less commonly, as IgE-mediated allergy associated with exercise, termed wheat-dependent exercise-induced anaphylaxis (WDEIA).
- Gluten, the primary storage protein in wheat grains, comprises various related proteins like gliadin and glutenin. These storage proteins are found in rye, barley, and oats, collectively referred to as 'gluten'.

Terms that signal presence:

- | | | |
|------------------------------------|---|---|
| • Bread crumbs | • Einkorn | • Kamut |
| • Bulgur | • Emmer | • Semolina |
| • Cereal extract | • Farina Flour (all-purpose, cake, enriched, graham, high protein, high gluten, pastry) | • Spelt |
| • Couscous | | • Sprouted wheat |
| • Durum (durum flour, durum wheat) | | • Triticale |
| | | • Vital wheat gluten |
| | | • Wheat (bran, germ, gluten, grass, malt, starch) |
| | | • Whole wheat berries |



Gluten

Gluten

- Gluten, a protein found in wheat, rye, and barley, is prevalent in various food items such as pasta, cakes, pastries, and biscuits.
- Moreover, it serves as a binding and extending agent in processed foods.
- Although gluten is not categorized as a typical allergen requiring labeling, wheat is acknowledged as a common allergen in the United States. Therefore, it is mandatory to explicitly list wheat on food packaging.

Terms that Indicate Presence:

- Barley (malt)
- Brewer's yeast
- Oats (unless specifically labeled gluten-free)
- Rye
- Wheat

Food Allergies vs. Food Intolerances

The differentiation between a food allergy and sensitivity hinges on the body's response mechanism. In the case of a food allergy, the immune system initiates the reaction, while a food sensitivity or intolerance elicits a response from the digestive system. Here are some key points to consider:

- **Food sensitivities**, unlike allergies, are typically non-life-threatening and may arise from an inability to metabolize or digest specific foods.
- Contrary to **food allergies**, sensitivities and intolerances do not engage the immune system.
- Symptoms of food sensitivity can vary, whereas intolerance symptoms primarily manifest as digestive issues such as gas, bloating, diarrhea, constipation, cramping, and nausea.

A genuine food allergy prompts an immune system response affecting multiple organs and can manifest in a range of symptoms, potentially leading to severe or life-threatening reactions in certain instances. In contrast, symptoms of food intolerance generally tend to be less severe, mainly manifesting as digestive problems. Those with food intolerance may be able to consume small amounts of the problematic food without adverse effects. However, proactive measures can help prevent reactions. For instance, individuals with lactose intolerance can opt for lactose-free milk or utilize lactase enzyme supplements to aid in digestion.



Common Food Sensitivities

Food additives and chemicals are suspected of contributing to gastrointestinal symptoms resembling those of irritable bowel syndrome (IBS) as well as extraintestinal symptoms like urticaria, headache, eczema, rhinitis, nasal congestion, or postnasal drip (Source: Barrett, J.S.; Gibson, P.R. Fermentable oligosaccharides, disaccharides, monosaccharides and polyols (FODMAPs) and nonallergic food intolerance: FODMAPs or food chemicals? Therap. Adv. Gastroenterol. 2012, 5, 261-268).

Here are some examples of food-related chemicals that may elicit gastrointestinal and extraintestinal symptoms, along with commonly associated food sources:

Food Chemicals

Natural food chemicals

- Amines (cheese, chocolate, bananas, ham, fish)
- Glutamate (tomato)
- Salicylates (apples, tomato)

Added food chemicals

- Antioxidants (oils, margarine)
- Benzoates (soft drinks, cordials)
- Colors (confectionary, jelly)
- Monosodium glutamate (MSG) (Chinese take-out, packaged foods)
- Nitrates (deli meats)
- Propionates (bread)
- Sorbic acid (processed cheese slices)
- Sulfites (soft drinks, cordials, dried fruit)

***Note: This is not a complete list of all possible natural/added food chemicals.**

Checking Ingredient Labels

It is imperative to emphasize the significance of reviewing food labels when educating individuals with food allergies. Proficiency in deciphering ingredient lists on food packaging is fundamental. If a label contains precautionary statements such as "this product may contain traces of allergens," it is recommended to abstain from consuming that specific food product.

Gluten

- To ensure no gluten is present, check for common ingredients like wheat, barley, rye, malt, brewer's yeast, and oats (unless labeled gluten-free).
- When a product is labeled "gluten-free," it is generally safe to consume as the FDA allows only packaged foods with less than 20ppm of gluten to be labeled as such.
- Always review the ingredients list. Keep in mind that "wheat-free" doesn't always mean "gluten-free."
- If a product does not have a "gluten-free" label, meticulously inspect the ingredients list for any hidden or suspicious components that might contain gluten.

Food Allergen Advisory Labeling

labels

How major food allergens are listed:

Food labels are mandated by law to disclose the names of major food allergen sources:

- Ingredients that are major food allergens should clearly state the allergen's food source in their common or usual name.
 - For instance, examples include "lecithin (soy)," "flour (wheat)," and "whey (milk)."
- If the common name of the ingredient does not reveal the allergen's food source, it must be declared on the label in one of two ways.
 - The food source of a major food allergen can be in parentheses after the ingredient's name or listed in a "contains" statement right after the ingredient list.
 - For example, it could be listed as "Contains Wheat, Milk, and Soy."
- FALCPA's labeling requirements do not address the accidental presence of major food allergens due to "cross-contact" during production.
- "Cross-contact" occurs when a small amount of an allergenic food contaminates another unintended food product.
- As per FDA guidelines, food allergen advisory statements like "may contain [allergen]" should not be a substitute for good manufacturing practices, must be accurate, and should not mislead consumers.

allergens



Seasonal Allergies

Seasonal allergies are commonly referred to as hay fever or allergic rhinitis. They manifest as allergic reactions to airborne allergens that emerge during particular times of the year. This often coincides with the release of spores by outdoor molds and the dispersion of minuscule pollen particles from trees, grasses, and weeds to facilitate plant fertilization.

Definition of Seasonal Allergies

- **Allergic Rhinitis**, also known as seasonal allergies, is an allergic response that primarily impacts the nose and eyes.
- **Seasonal allergies** manifest during particular times of the year, typically in spring, summer, and early fall, often triggered by pollen from trees, grasses, and weeds.
- Allergens are substances that induce allergic responses. In the context of seasonal allergies, these are commonly airborne and consist of pollen from plants and outdoor molds.



Seasonal Allergies

What happens in the body

- **Exposure to Allergens:** When a person with seasonal allergies breathes in pollen or mold spores, their immune system mistakenly identifies these harmless substances as dangerous intruders.
- **Immune Response:** The immune system responds by producing antibodies called Immunoglobulin E (IgE). These antibodies travel to cells that release chemicals, causing an allergic reaction.
- **Release of Histamine:** One of the primary chemicals released is histamine, which contributes to allergy symptoms.
- **Allergic Symptoms:** The release of histamine and other chemicals causes symptoms such as sneezing, runny or stuffy nose, itchy or watery eyes, and sometimes itching of the ears or the roof of the mouth.
- **Inflammation:** Prolonged exposure to allergens can lead to inflammation in the nasal passages and airways, sometimes exacerbating the symptoms and leading to further complications like sinusitis or exacerbating asthma.

Key Points

- Seasonal allergies, unlike colds, are not triggered by a virus despite sharing similar symptoms.
- Seasonal allergies can be a persistent condition that greatly affects the quality of life during specific seasons.
- The intensity of allergies can differ significantly among individuals and may fluctuate over time, sometimes even from one year to the next.
- People have varying allergic reactions to different pollen types, leading to differences in symptom timing and severity.

Key Points

Seasonal Allergy and Food Sensitivity Crossover:

Airborne allergies and food groups airborne allergies, like pollen and dust, can interact with specific foods, leading to oral allergy syndrome (OAS) or pollen-food syndrome. This reaction occurs when an individual allergic to a particular type of pollen has a similar response to related foods due to shared proteins.

- **Birch Pollen Allergy:** Often linked to reactions to apples, pears, peaches, plums, almonds, carrots, celery, parsley, and various fruits and vegetables.
- **Grass Pollen Allergy:** Associated with reactions to melons, tomatoes, oranges, and peaches.
- **Ragweed Pollen Allergy:** Could trigger reactions to bananas, melons, zucchini, cucumber, and sunflower seeds.
- **Mugwort Pollen Allergy:** Related to reactions to celery, apples, kiwi, peanuts, and carrots.

Symptoms of OAS typically include mouth, face, lip, tongue, and throat itching or swelling immediately after consuming raw fruits or vegetables. **Cooking these foods often prevents the reaction, as heating alters the protein structure, reducing allergenicity.**

Additionally, other cross-reactions include:

- **Latex-Fruit Syndrome:** Individuals allergic to latex may also react to foods like bananas, avocados, kiwi, chestnut, and papaya.
- **Animal Allergens:** Those allergic to animal dander might have reactions to specific meats.

Histamine and Mast Cell Activation Syndrome (MCAS)

What Is Histamine

Histamine is a naturally occurring compound that is involved in local immune responses, as well as regulating physiological functions in the gut and acting as a neurotransmitter in the brain. It is found in nearly all tissues of the body and is produced by basophils and mast cells in connective tissues. Histamine plays a central role in allergic reactions, where it contributes to the symptoms and signs associated with allergies, whether they are seasonal (such as hay fever) or related to specific foods.

What Is Mast Cell Activation

Mast Cell Activation refers to the process by which mast cells, a type of white blood cell found in all tissues of the body, release their contents, including histamine and other inflammatory mediators, into the surrounding tissue. This activation can occur in response to a variety of triggers. These include allergens, physical injury, stress, chemical exposure, and infections. Mast cells play a critical role in the body's immune defense system, but their overactivation can lead to a range of pathological conditions, including allergic reactions, asthma, and Mast Cell Activation Syndrome (MCAS)

Histamine and Mast Cell Activation Syndrome (MCAS)

Understanding Histamine Basics

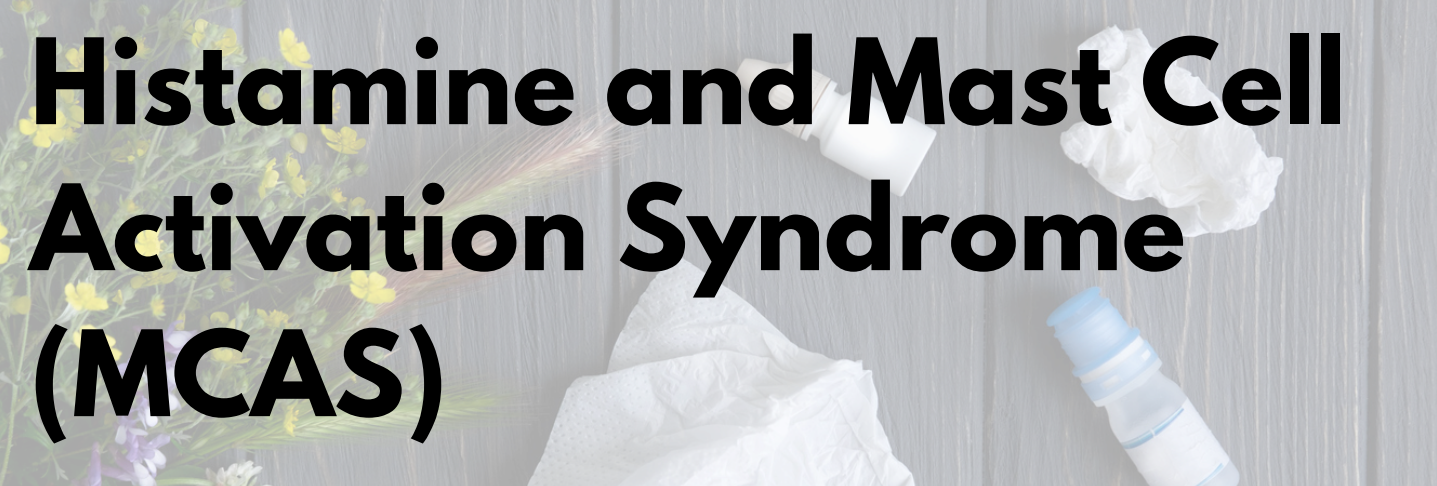
Histamine is produced by basophils and mast cells in body connective tissues. It plays a role in local immune responses, regulating gut function, and acting as a neurotransmitter in the brain, spinal cord, and uterus. Histamine is stored in granules within mast cells and is released during allergic reactions, inflammation, injury, and/or other stimuli.

Histamine's Role in Allergic Reactions

Allergies arise when the immune system misidentifies a harmless substance (allergen) as a threat, triggering an immune response. This response involves a histamine release from mast cells and basophils, which binds to histamine receptors (H1, H2, H3, and H4) on different cell types, leading to:

- **Vasodilation and Increased Blood Vessel Permeability:** Resulting in symptoms like redness, swelling, and hives in allergic reactions.
- **Smooth Muscle Contraction:** Leading to bronchoconstriction observed in asthma.
- **Increased Mucus Production:** Contributing to nasal congestion and runny nose in allergic rhinitis.
- **Stimulation of Nerve Endings:** Inducing itching or pain.

Histamine and Mast Cell Activation Syndrome (MCAS)



Histamine in Seasonal Allergies

In seasonal allergies, such as hay fever, exposure to airborne allergens (like pollen) triggers a histamine release. This contributes to inflammation and irritation of the nasal passages, eyes, and airways, leading to the common symptoms of sneezing, nasal congestion, itchy eyes, and watery discharge.

Histamine in Food Allergies

In the case of food allergies, ingesting a specific allergen can trigger an immune response in which histamine is released. This can affect the gastrointestinal tract, skin, and respiratory system, leading to symptoms such as vomiting, diarrhea, hives, or even anaphylaxis, a severe, potentially life-threatening allergic reaction.

Mast Cell Activation Syndrome (MCAS)

Mast Cell Activation Syndrome (MCAS)

MCAS is a condition where mast cells inappropriately release too many substances, including histamine, without a typical allergic trigger. It's characterized by recurrent and sometimes severe symptoms, which are often multisystem in nature, including skin rashes, flushing, abdominal pain, nausea, fatigue, and neuropsychiatric symptoms. The cause can be unknown or secondary to allergies or infections.

Diagnosis and Management

- **Allergies:** Diagnosis involves skin or blood tests to identify specific allergic sensitivities, managed by avoiding known allergens, medications to control symptoms (antihistamines, corticosteroids), and in some cases, immunotherapy.
- **Food Sensitivities:** Managed by identifying and avoiding high-histamine foods and possibly supplementing with DAO enzyme to help break down dietary histamine.
- **MCAS:** Diagnosis can be challenging and may involve measuring the levels of mediators released by mast cells, including histamine, in the blood or urine. Management includes medications to stabilize mast cells such as mast cell stabilizers, antihistamines, leukotriene inhibitors, and avoid known triggers.

Mast Cell Activation Syndrome (MCAS)

Mast Cell Activation in Allergies:

In the context of allergies, mast cell activation is triggered by the interaction between an **allergen and the Immunoglobulin E (IgE) antibodies** bound to the surface of mast cells.

This interaction prompts the mast cells to release a variety of substances, including histamine, which then act on the surrounding tissues to produce the typical symptoms of an allergic reaction, such as swelling, redness, itching, and increased mucus production.

Mast Cell Activation Syndrome (MCAS)

The Role of Estrogen on Mast Cell Activation:

Estrogen, a key female sex hormone, has been shown to influence mast cell activation, thereby affecting allergic responses and other conditions involving mast cell activity. Estrogen can impact mast cells in several ways:

- **Modulation of Mast Cell Number:** Estrogen may influence the development and number of mast cells within certain tissues. Some studies suggest that high levels of estrogen can increase the number of mast cells, potentially leading to heightened allergic responses.
- **Mast Cell Activation:** Estrogen can directly impact mast cell membranes, making them more prone to releasing their contents. This means that during periods of high estrogen levels, such as certain phases of the menstrual cycle, pregnancy, or when using estrogen-based medications, individuals may experience more severe or more frequent allergic reactions.
- **Interaction with Histamine Receptors:** Estrogen can also modulate the expression of histamine receptors, potentially influencing the severity of allergic reactions and the effectiveness of antihistamine medications.

The Histamine Connection

Histamine plays various roles in the body, including acting as a neurotransmitter, regulating gastric acid secretion, and participating in immune responses, which means its dysregulation or excessive release can contribute to a wide range of health issues. **Here are a few conditions where histamine is implicated:**

Gastrointestinal Disorders

Gastroesophageal Reflux Disease (GERD) and Peptic Ulcers:

Histamine stimulates the production of gastric acid in the stomach. Overproduction can contribute to conditions like GERD and peptic ulcers. Histamine H2 receptor antagonists (H2 blockers) are commonly used to treat these conditions by reducing gastric acid production.

Neurological Conditions

Migraines: Some research suggests that histamine can trigger migraines in susceptible individuals. Histamine release can cause vasodilation, which is a contributing factor in migraine headaches.

Cardiovascular Issues

Heart Rhythm Problems: Histamine can influence heart rate and rhythm. Excessive histamine release, as seen in severe allergic reactions (anaphylaxis), can lead to abnormal heart rhythms.

The Histamine Connection

Skin Conditions

Eczema and Psoriasis: These inflammatory skin conditions can be exacerbated by histamine, contributing to itching and inflammation.

Psychiatric and Cognitive Effects

Anxiety and Depression: As a neurotransmitter, histamine has been implicated in various psychiatric and cognitive functions.

Dysregulation of histamine levels can potentially contribute to anxiety, depression, and other mood disorders.

Autoimmune Diseases

Rheumatoid Arthritis and Multiple Sclerosis (MS): Histamine is involved in inflammatory processes, and its role in autoimmune diseases is an area of ongoing research.

Natural Remedies and Supplements

- **Quercetin:** This natural flavonoid is commonly found in various fruits and vegetables. It is believed to play a role in stabilizing mast cells and decreasing histamine release.
- **Bromelain:** An enzyme present in pineapple known for its anti-inflammatory effects. When taken together, it can boost the absorption of quercetin.
- **Vitamin C:** Apart from boosting the immune system, Vitamin C acts as a natural antihistamine.
- **Butterbur:** Studies have indicated that this herb may help alleviate allergy symptoms.
- **Nettle Leaf:** Usually consumed in capsule or tea form, nettle leaf can act as a natural antihistamine.
- **Probiotics:** Beneficial for gut health, which is closely linked to immune function and can impact allergic responses.
- **Omega-3 Fatty Acids:** Found in fish oil and flaxseed oil, these acids are recognized for their anti-inflammatory properties.
- **Magnesium:** Has the potential to decrease bronchial reactivity in asthma, a condition commonly associated with allergies.
- **Zinc:** Renowned for its immune-boosting properties and its potential to regulate the histamine response.
- **Selenium:** An antioxidant that aids in supporting immune function.
- **Vitamin D:** Insufficient levels of Vitamin D have been associated with higher incidences of allergic conditions.
- **Vitamin E:** Possesses anti-inflammatory properties and may contribute to immune health.

Natural Remedies and Supplements

Herbs and Adaptogens

- **Turmeric (Curcumin):** The active compound, curcumin, possesses strong anti-inflammatory and antioxidant properties.
- **Ginger:** Known for its anti-inflammatory properties and ability to alleviate respiratory and nasal issues.
- **Licorice Root:** Can assist in reducing inflammation and soothing respiratory passages.
- **Ashwagandha:** An adaptogen that helps regulate the stress response, potentially lessening the impact of stress on allergy symptoms.
- **Holy Basil (Tulsi):** Recognized for its immune-modulating and anti-inflammatory effects.

Medicinal Mushrooms

- **Reishi:** May exhibit anti-allergenic properties by inhibiting histamine release and enhancing liver function, vital for detoxifying allergens.
- **Cordyceps:** Beneficial for respiratory health and may possess anti-inflammatory properties.
- **Shiitake:** Contains compounds that support immune function and may have anti-inflammatory effects.
- **Chaga:** Noted for its high antioxidant levels and ability to bolster immune health.

Diet, Lifestyle and Complementary Treatment

Diet

- To reduce inflammation, try eating foods rich in omega-3 fatty acids, antioxidants, and flavonoids. Good options include fatty fish, nuts, seeds, fruits, and vegetables.
- Trying a low histamine diet for a while might help reduce inflammation and reactions. Some people find relief by following a low histamine diet, which means avoiding foods high in histamine such as aged cheeses, fermented foods, and alcohol.
- Managing specific food allergies by avoiding trigger foods can also help ease symptoms.

Lifestyle Changes

- To improve indoor air quality and reduce allergens, use HEPA air filters and keep your living space clean to minimize dust mites, pet dander, and mold.
- Drinking enough water can thin out mucus, potentially easing allergy symptoms. So, staying hydrated is key for keeping your airways clear and reducing discomfort caused by allergies.
- Using a saline solution to rinse your nasal passages can help ease congestion and irritation in your nose. This simple method, called nasal irrigation, can provide relief from discomfort caused by allergies or nasal congestion.
- To reduce allergic responses, try managing stress with activities such as yoga, meditation, or deep breathing exercises. These techniques can help calm your body's reactions and alleviate symptoms associated with allergies.
- Ensure you get enough quality sleep to support proper immune system function.

Diet, Lifestyle and Complementary Treatment

Other Considerations

NAET Therapy (Nambudripad's Allergy Elimination Techniques)

NAET is an alternative medicine approach created by Dr. Devi Nambudripad in the 1980s. It blends techniques from different medical fields like allopathy, acupuncture, chiropractic, kinesiology, and nutrition. NAET operates on the belief that allergies can be treated holistically and non-invasively by addressing their root causes.

How It Supports Allergies:

NAET seeks to desensitize individuals to allergens by addressing energy pathway blockages thought to trigger immune reactions. In a NAET session, practitioners use muscle testing to identify allergies, followed by specific acupuncture or acupressure techniques while exposing the patient to a small amount of the allergen. The aim is to recalibrate the body's response to the allergen, potentially decreasing future allergic reactions. Patients may also receive dietary guidance and supplements as part of their treatment.

Diet, Lifestyle and Complementary Treatment

Complimentary Treatments

Kinesiology

Kinesiology refers to the study of body movement, and in the context of alternative medicine, it often focuses on muscle testing to diagnose imbalances in the body's structural, chemical, and emotional energy. Applied kinesiology, a branch used by some chiropractors and other health professionals, evaluates the strength of various muscles as a diagnostic tool.

What is Muscle Testing?

Muscle testing is a way for clinicians to figure out what's going on inside your body by tapping into its own messaging system. Instead of sending notes or emails, your body communicates through muscles, turning them on and off. These muscle movements help us do everyday things like move, talk, and digest food. Using muscle testing, trained practitioners can gather lots of information about a patient's health that they couldn't get any other way.

How It Supports Allergies:

In applied kinesiology, practitioners may use muscle testing to identify potential allergens that cause a muscle to weaken. Treatment might involve specific joint manipulation, massage, dietary management, or acupuncture to improve health and alleviate allergic symptoms. The approach is based on the belief that certain muscles are linked to specific organs and bodily functions, including the immune system.

Diet, Lifestyle and Complementary Treatment

More Complimentary Treatments

Chiropractic

Chiropractic is a type of alternative medicine that focuses on finding and treating problems with the bones and muscles in your body, especially in your spine. Chiropractors use techniques like adjusting and manipulating the spine to fix alignment issues. They believe that by making these corrections, they can improve how your body works as a whole, including your nervous system.

How It Supports Allergies:

Chiropractic care might help with allergies by fixing spinal alignment. When your spine is in good shape, it can help your nervous system work better which is important for controlling your immune system and reducing inflammation. Chiropractors may also give tips on making better food choices, taking supplements, and changing your lifestyle to stay healthy and feel better during allergy season.



Diet, Lifestyle and Complementary Treatment

Adjunctive Treatments and Lifestyle Adjustments

Acupuncture

Acupuncture is believed to activate the nervous system, triggering the release of chemicals that can control pain and immune reactions. Some studies indicate that acupuncture may help ease symptoms of seasonal allergies, like a stuffy or itchy nose. This could be because acupuncture might reduce inflammation and balance the immune system.

Environmental Strategies

To reduce allergy symptoms, try using air purifiers, staying indoors during high pollen times, keeping windows closed in allergy season, and using dust mite-proof covers on your bed. These steps can lower your exposure to allergens, which might lead to fewer symptoms overall.

Hydration and Moisture in the Air

Drinking plenty of fluids can help thin out mucus, making it easier for your body to clear it from your system. Using a humidifier can also add moisture to the air especially in dry climates or seasons. Remember, it's crucial to maintain humidity levels between 30-50% to avoid mold growth.

Diet, Lifestyle and Complementary Treatment

Other Lifestyle Adjustments

Mind-Body Techniques

Yoga and meditation might make breathing better and help manage stress, which could make allergic reactions less severe. Breathing exercises, like the Buteyko method or diaphragmatic breathing, could also improve breathing and lessen symptoms.

Nasal Irrigation

With regular practice, nasal saline irrigation is ideal for daily use during allergy season to clear allergens and irritants from the nasal passages. Remember to use distilled, sterile, or previously boiled water to prepare the saline solution to prevent infections.

Dietary Changes

A low-histamine diet is helpful for people sensitive to histamine. This diet means avoiding foods high in histamine or that trigger histamine release. Omega-3 fatty acids found in foods like flaxseeds, chia seeds, and fatty fish have anti-inflammatory properties, which could help lessen allergic responses. Please see these guides for more information on low histamine diets [here](#) and [here](#).

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