CONDITION

Allergies

Learn how allergies affect the body, common symptoms and triggers, how allergy testing works, and when a reaction needs emergency care.

WHAT IT IS
Immune reaction to a usually harmless substance

BODY SYSTEM
Immune system

MAIN SYMPTOMS
Itching, swelling, hives, breathing problems

WHAT CAUSES IT
Immune reaction to allergens

HOW IT IS DIAGNOSED
History, allergy testing, supervised challenge

MAIN TREATMENT
Allergen avoidance and symptom control

CAN IT BE CURED?
Sometimes - some allergies resolve over time

IS IT AN EMERGENCY?
Sometimes - difficulty breathing or throat swelling

LONG-TERM OUTLOOK
Often manageable, but severe reactions can recur

Overview

Allergies occur when the immune system reacts to a usually harmless substance called an allergen . Common allergens include pollen, dust mites, animal dander, mold, foods, medicines, insect venom, and latex.

Allergies can affect the nose, eyes, skin, lungs, digestive system, or the whole body. Some reactions are mild, such as itchy eyes during pollen season, while others can be life-threatening.

Many immediate reactions involve an antibody called immunoglobulin E (IgE) . After sensitization, later exposure may cause immune cells to release histamine and other chemicals, leading to itching, swelling, hives, mucus production, vomiting, or breathing problems.

Not every unpleasant reaction is an allergy. Lactose intolerance, for example, results from difficulty digesting milk sugar rather than an immune response. Medicine side effects, skin irritation, food poisoning, and other conditions may also be mistaken for allergies. Correct diagnosis helps prevent unnecessary restrictions and prepares people for triggers that could cause serious reactions.

Symptoms

Symptoms vary by allergen, route of exposure, and body area affected. They may begin within minutes or develop over several hours; some skin reactions take a day or longer.

Allergic rhinitis, or hay fever, may cause sneezing, a runny or blocked nose, itching, and mucus draining down the throat. The eyes may become red, watery, swollen, or itchy.

Skin reactions include raised, itchy welts called hives and deeper swelling called angioedema , often affecting the lips, eyelids, hands, or feet. Allergic contact dermatitis causes an itchy, red, blistered, or scaly rash after contact with substances such as nickel, fragrances, or certain chemicals.

Food allergies may cause mouth itching, hives, facial swelling, vomiting, stomach pain, diarrhea, coughing, wheezing, or dizziness. Serious reactions can occur without hives. Medicine and insect-sting allergies can produce local or whole-body symptoms, although pain and swelling limited to a sting site are often local reactions rather than anaphylaxis.

Anaphylaxis is a rapid, serious reaction affecting breathing or blood circulation. Warning signs include:

Anaphylaxis requires immediate treatment. Use prescribed epinephrine as directed and call emergency services. Do not wait for symptoms to improve or use an antihistamine like cetirizine or loratadine in place of epinephrine.

- Difficulty breathing, wheezing, or repeated coughing
- Throat tightness, trouble swallowing, or a hoarse voice
- Tongue swelling
- Fainting, severe dizziness, confusion, or signs of shock
- Symptoms in multiple body systems after exposure, such as hives with vomiting or breathing difficulty

Causes and risk factors

Allergy develops through sensitization , in which the immune system learns to recognize an allergen. Sensitization may appear on a test without causing symptoms, so a positive test alone does not prove clinical allergy.

Common airborne allergens include pollen, dust mites, mold spores, and proteins from animal skin, saliva, or urine. Animal hair is not usually the allergen, but it can carry dander or pollen.

Common food allergens include peanut, tree nuts, milk, egg, wheat, soy, fish, shellfish, and sesame, although any food can cause a reaction. Food allergy differs from intolerance, food poisoning, and celiac disease.

Medicines may cause allergic reactions, predictable side effects, or unrelated symptoms. Penicillin allergies are frequently reported, but formal evaluation shows that some people with this label are not currently allergic. Other triggers include insect venom, natural rubber latex, and substances that cause contact dermatitis. Poison ivy, for example, produces a delayed immune reaction rather than an immediate IgE reaction.

A personal or family history of asthma, eczema, or allergic rhinitis increases the likelihood of allergic disease. Asthma, especially when poorly controlled, can increase the danger of a severe food-allergic reaction.

Reaction severity may be influenced by illness, exercise, alcohol, sleep loss, certain medicines, and the amount of allergen. A previous mild reaction does not guarantee that future reactions will remain mild.

Diagnosis

Diagnosis begins with a detailed history. A clinician may ask what exposure occurred, how quickly symptoms started, how long they lasted, what was eaten or touched, which medicines were taken, and whether the same exposure was previously tolerated. Photographs, labels, ingredient lists, and a symptom timeline may help.

Tests are selected according to the history and may include:

Results must be interpreted alongside symptoms. Broad testing without a clear reason can identify sensitization that is not clinically meaningful, leading to unnecessary avoidance or incorrect medicine labels. Commercial food IgG panels are not recommended because IgG commonly reflects exposure rather than allergy.

Do not deliberately test a suspected food, medicine, or insect allergy at home if a serious reaction is possible. Challenge testing requires trained supervision and an appropriate medical setting.

- Skin-prick testing: Suspected allergens are placed on gently pricked skin. A raised bump suggests sensitization.
- Allergen-specific IgE blood testing: Measures IgE antibodies to selected allergens and may be used when skin testing is unsuitable.
- Patch testing: Investigates delayed contact dermatitis by keeping allergens against the skin for a set period.
- Supervised challenge testing: A suspected food or medicine is given in increasing amounts under medical observation. An oral food challenge is the standard for confirming or excluding many uncertain food allergies.

Treatment and management

Management depends on the trigger, symptoms, and risk of severe reaction. Avoidance should be specific rather than broader than necessary.

For pollen allergy, keeping windows closed during high-pollen periods, changing clothes after outdoor activity, and rinsing pollen from hair may help. Dust-mite measures include allergen-resistant bedding covers and humidity control. Mold management requires removing visible mold and correcting the moisture source.

People with food allergies should read ingredient labels and understand cross-contact, which occurs when an allergen is unintentionally transferred to another food. Schools, caregivers, restaurants, and workplaces may need an emergency plan. A dietitian can help maintain balanced nutrition when major foods are avoided.

Antihistamines can reduce sneezing, itching, hives, and a runny nose, although some cause drowsiness. They do not reverse airway swelling or shock during anaphylaxis.

Corticosteroid nasal sprays can improve congestion, sneezing, and runny nose when used correctly and consistently. Saline rinses may also help; use only distilled, sterile, or previously boiled and cooled water. Allergy eye symptoms may improve with avoidance, cool compresses, or allergy eye drops.

Asthma symptoms require an asthma-specific assessment and treatment plan. Wheezing or coughing after allergen exposure may indicate poorly controlled asthma or a serious allergic reaction.

Epinephrine is the first-line treatment for anaphylaxis. People at risk may be prescribed an auto-injector and taught how and when to use it. Family members, caregivers, or coworkers may also need training. Keep the device accessible.

Allergen immunotherapy , including allergy shots and selected tablets placed under the tongue, provides controlled allergen exposure over time. It may reduce symptoms from certain airborne allergens or stinging-insect venom. Specialist assessment is required because immunotherapy is not suitable for every allergy and can cause reactions.

Some supervised food-allergy treatments raise the amount needed to trigger a reaction. They do not cure the allergy or make unrestricted eating safe, and patients must remain prepared for reactions.

Complications

Anaphylaxis can progress quickly or recur after initial improvement. Medical observation may be needed after treatment, depending on the reaction and individual risk factors.

Allergic rhinitis can disrupt sleep, concentration, school, and work and may occur with asthma or sinus problems. Scratching eczema or contact dermatitis can damage the skin and increase infection risk. Extensive food avoidance may cause nutritional problems, particularly in children.

Incorrect allergy labels can also cause harm. A mistaken antibiotic allergy may limit treatment options, while an unsupported food-allergy diagnosis may create unnecessary dietary and social restrictions.

Follow up

Arrange follow-up when symptoms are frequent, interfere with daily life, remain uncontrolled, or have an uncertain trigger. Evaluation is also important after a reaction to food, medicine, latex, or an insect sting.

A clinician or allergy specialist can interpret tests, confirm necessary avoidance, update medical records, and provide a written action plan. People prescribed epinephrine should periodically review injection technique and check the device's expiration date and condition.

Medicine allergies may be reassessed because some labels can be removed after appropriate testing or a supervised challenge. Children with certain food allergies may need periodic evaluation because some allergies resolve over time.

Seek prompt medical advice for new wheezing, repeated vomiting after a suspected exposure, significant facial swelling, or a worsening reaction.

Call emergency services for difficulty breathing, throat or tongue swelling, fainting, severe

dizziness, or suspected anaphylaxis. Use prescribed epinephrine immediately. Emergency evaluation is still necessary even if symptoms improve.

Sources

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