

# What is an allergy?

An allergy is a specific reaction of the body's **immune system** to a normally harmless substance, one that does not bother most people. People who have allergies often are sensitive to more than one substance. Types of allergens that cause allergic reactions include:

- Pollens
- House dust mites
- Mold spores
- Food
- Latex rubber
- Insect venom
- Medicines

# Why are some people allergic?

Scientists think that some people inherit a tendency to be allergic from one or both parents. This means they are more likely to have allergies. They probably, however, do not inherit a tendency to be allergic to any specific allergen. Children are more likely to develop allergies if one or both parents have allergies. In addition, exposure to allergens at times when the body's defenses are lowered or weakened, such as after a viral infection or during pregnancy, seems to contribute to developing allergies.

# What is an allergic reaction?

Normally, the immune system functions as the body's defense against invading germs such as bacteria and viruses. In most allergic reactions, however, the immune system is responding to a false alarm. When an allergic person first comes into contact with an allergen, the immune system treats the allergen as an invader and gets ready to attack.

The immune system does this by generating large amounts of a type of **antibody** called immunoglobulin E, or IgE. Each IgE antibody is specific for one particular substance. In the case of pollen allergy, each antibody is specific for one type of pollen. For example, the immune system may produce one type of antibody to react against oak pollen and another against ragweed pollen.

# What are symptoms of allergies?

- Sneezing, often with a runny or clogged nose
- Coughing and postnasal drip
- Itching eyes, nose, and throat
- Watering eyes
- **Conjunctivitis**
- “Allergic shiners” (dark circles under the eyes caused by increased blood flow near the **sinuses**)
- “Allergic salute” (in a child, persistent upward rubbing of the nose that causes a crease mark on the nose)
- Hives
- Itching skin
- Skin rash
- Flushing of the skin
- Anaphalaxis (swelling of the tongue and throat)

## Types and Prevention of Allergies

### Pollen Allergy

Each spring, summer, and fall, tiny pollen grains are released from trees, weeds, and grasses. These grains hitch rides on currents of air. Although the mission of pollen is to fertilize parts of other plants, many never reach their targets. Instead, pollen enters human noses and throats, triggering a type of seasonal allergic rhinitis called pollen allergy. Many people know this as hay fever. Of all the things that can cause an allergy, pollen is one of the most common. Many of the foods, medicines, or animals that cause allergies can be avoided to a great extent. Even insects and household dust are escapable. When the pollen count is higher, even staying indoors with the windows closed may not help when there is no easy way to avoid airborne pollen.

Each plant has a pollinating period that is more or less the same from year to year. Exactly when a plant starts to pollinate seems to depend on the relative length of night and daytime and therefore on geographical location rather than on the weather. On the other hand, weather conditions during pollination can affect the amount of pollen produced and distributed in a specific year. Thus, in the Northern Hemisphere, the farther north you go, the later the start of the pollinating period and the later the start of the allergy season.

# Mold Allergy

## ***What is mold?***

There are thousands of types of molds and yeasts in the fungus family. The seeds or reproductive pieces of fungi are called spores. Spores differ in size, shape, and color among types of mold. Each spore that germinates can give rise to new mold growth, which in turn can produce millions of spores.

## ***What is mold allergy?***

When inhaled, tiny fungal spores, or sometimes pieces of fungi, may cause allergic rhinitis. Because they are so small, mold spores also can reach the lungs.

In a small number of people, symptoms of mold allergy may be brought on or worsened by eating certain foods such as cheeses processed with fungi.

Occasionally, mushrooms, dried fruits, and foods containing yeast, soy sauce, or vinegar will produce allergy symptoms.

## ***Where do molds grow?***

Molds can be found wherever there is moisture, oxygen, and a source of the few other chemicals they need. This could really mean, anywhere!

## **Mold and Pollen Prevention**

### ***Avoidance***

Complete avoidance of allergenic pollen or mold means moving to a place where the offending substance does not grow and where it is not present in the air. Even this extreme solution may offer only temporary relief because a person sensitive to a specific pollen or mold may develop allergies to new allergens after repeated exposure to them.

### ***Reduce Exposure***

- Remain indoors with the windows closed in the morning, for example, when the outdoor pollen levels are highest. Sunny, windy days can be especially troublesome.
- Wear a face mask designed to filter pollen out of the air and keep it from reaching nasal passages, if you must work outdoors.
- Take your vacation at the height of the expected pollinating period and choose a location where such exposure would be minimal.

### ***Air Conditioners and Filters***

When possible, use air conditioners inside your home or car to help prevent pollen and mold allergens from entering. Various types of air-filtering devices

made with fiberglass or electrically charged plates may help reduce allergens produced in the home. You can add these to your present heating and cooling system. In addition, portable devices that can be used in individual rooms are especially helpful in reducing animal allergens.

## Dust Mite Allergy

Dust mite allergy is an allergy to a microscopic organism that lives in the dust found in all dwellings and workplaces. House dust, as well as some house furnishings, contains microscopic mites. Dust mites are perhaps the most common cause of **perennial** allergic rhinitis.

### ***What is house dust?***

Rather than a single substance, so-called house dust is a varied mixture of potentially allergenic materials. It may contain fibers from different types of fabrics and materials such as

- Cotton lint, feathers, and other stuffing materials
- Dander from cats, dogs, and other animals
- Bacteria
- Mold and fungus spores (especially in damp areas)
- Food particles
- Bits of plants and insects
- Other allergens peculiar to an individual house or building

Cockroaches are commonly found in crowded cities and in the southern United States. Certain proteins in cockroach feces and saliva also can be found in house dust. These proteins can cause allergic reactions or trigger asthma symptoms in some people, especially children. Cockroach allergens likely play a significant role in causing asthma in many inner-city populations.

## House Dust Prevention

If you have dust mite allergy, pay careful attention to dust-proofing your bedroom. The worst things to have in the bedroom are

- Wall-to-wall carpet
- Blinds
- Down-filled blankets
- Feather pillows
- Stuffed animals
- Heating vents with forced hot air
- Dogs and cats
- Closets full of clothing

### Cleaning Tips

- Clean washable items, including throw rugs, often, using water hotter than 130 degrees Fahrenheit. Lower temperatures will not kill dust mites.
- Clean washable items at a commercial establishment that uses high water temperature, if you cannot or do not want to set water temperature in your home at 130 degrees. (There is a danger of getting scalded if the water is more than 120 degrees.)
- Dust frequently with a damp cloth or oiled mop.

### Cockroaches

- Do not leave food or garbage out.
- Store food in airtight containers.
- Clean all food crumbs or spilled liquids right away.
- Try using poison baits, boric acid (for cockroaches), or traps first, before using pesticide sprays.

### If you use sprays:

- Do not spray in food preparation or storage areas.
- Do not spray in areas where children play or sleep.
- Limit the spray to the infested area.
- Follow instructions on the label carefully.
- Make sure there is plenty of fresh air when you spray.
- Keep the person with allergies or asthma out of the room while spraying.

## Animal Allergy

Household pets are the most common source of allergic reactions to animals.

Many people think that pet allergy is provoked by the fur of cats and dogs. Researchers have found, however, that the major allergens are proteins in the saliva. These proteins stick to the fur when the animal licks itself.

Allergies to animals can take 2 years or more to develop and may not decrease until 6 months or more after ending contact with the animal. Carpet and furniture are a reservoir for pet allergens, and the allergens can remain in them for 4 to 6 weeks. In addition, these allergens can stay in household air for months after the animal has been removed.

### Animal Allergen Prevention

If you or your family is allergic to furry pets, especially cats, the best way to avoid allergic reactions is to find them another home. If you are like most people who are attached to their pets, that is usually not a desirable option. There are ways,

however, to help lower the levels of animal allergens in the air, which may reduce allergic reactions.

- Bathe your cat weekly and brush it more frequently (ideally, a non-allergic person should do this).
- Keep cats out of your bedroom.
- Remove carpets and soft furnishings, which collect animal allergens.
- Use a vacuum cleaner and room air cleaners with HEPA filters
- Wear a face mask while house and cat cleaning.

## Insect Allergy

### ***What are insect allergies?***

Insect allergy simply means that exposure to an insect brings about an overreaction to the immune system in a sensitive person. Most often, exposure involves a sting or bite that injects the venom of the insect.

### ***What insects cause allergies?***

Honeybees – *most common!*

Wasps

Hornets

Yellowjackets – *most common!*

Ants

### ***What are the reactions to insect stings?***

**Normal** – A pain, redness, swelling, itching and warmth at site of a sting; lasting a few hours; and confined to the area of the sting

**Toxic** – Result of multiple stings; as few as 10 stings can cause symptoms of muscle cramps, headache, fever, and drowsiness; 500 stings within a short period of time can kill a person

**Allergic** – allergic reactions can range from local (at the site of sting) to systemic\* (whole body reaction) and be mild to severe. Symptoms can be swelling, sneezing, chest constriction, abdominal pain, dizziness, and nausea. The most severe reaction can be anaphalatic shock (see general symptoms above). These reactions can result in death if not treated.

*\*Systemic reactions start 10-20 minutes after sting. If a reaction starts right away, it can be more severe.*

# Insect Allergy Prevention

## **Avoidance**

- Wear close-fitting clothes
- Wear white or light khaki clothing (dark-colored clothing may provoke an attack)
- Avoid scented soaps, perfumes, suntan lotions, and other cosmetics
- Avoid shiny buckles or jewelry
- Minimize skin exposure (long-sleeved shirts, slacks, hats, socks, and shoes)
- Limit contact with flower beds, clover fields, garbage cans, and ripe fruit (insects are often found in these areas)
- Keep car windows closed
- Check for holes in screens and doors
- Keep garbage cans clean, sprayed with an insecticide and closed tightly
- Have nests under eaves, in trees or in the ground professionally removed

## **Treatment**

- Remove any stinger as soon as possible after the sting to keep the amount of venom in the blood low
- Apply a cold pack if possible
- A serious reaction to a sting should be treated as an emergency – call 911!

**Note:** Allergic persons should wear a Medic Alert identification bracelet or carry an information card with treatment instructions and have an emergency insect sting treatment on hand.

# Drug Allergy

## ***What are drug allergies?***

Certain medications can be an allergen for certain people and as a result are classified as drug allergies. A drug allergy can range from a mild reaction such as a skin rash (limited to a small area) to a life-threatening reaction such as swelling of tongue, face, eyes or throat. If you experience any of these life-threatening reactions, please see a health care provider immediately.

## ***What is not a drug allergy reaction?***

Vomiting, diarrhea, nausea, cough, flatulence are commonly confused as drug allergies when in fact these are side effects of the medication.

## What are side effects?

Side effects or adverse drug events are reactions to a medication that are unexpected but can occur in anyone.

## What Drugs and Drug Classes are Common Drug Allergies?

Drug Class	Drugs
<b>Penicillin Drug Class*</b> *If you have had a severe allergy to penicillin (swelling of face or throat) let your doctor, pharmacist and nurse know because you may not be able to take a cephalosporin – see Cephalosporin Drug Class below).	Amoxil, Augmentin, Geocillin, Trimox, amoxicillin
<b>Cephalosporin Drug Class</b>	Keflex , Omnicef, Cefzil, Ceftin, Vantin, Lorabid, Cedax, Cephalexin
<b>Macrolides Drug Class</b>	Erythromycin, Zithromax, Biaxin, Dynabac
<b>Tetracycline Drug Class</b>	Minocin, Dynacin, Monodox, Vibramycin, Minocycline, doxycycline, tetracycline
<b>Sulfa drugs</b>	<b>Sulfa drug allergy is dependent on different types of drugs with a sulfa component:</b>
	<b>Antibiotics:</b> Septra
	<b>Blood pressure medications:</b> Hydrochlorothiazide, HCTZ, Lasix, furosemide, Bumex, Demadex, Hyzaar,
	<b>Diabetes Medication:</b> Amaryl, Glucotrol, glipizide, glyburide
	<b>Pain Medication:</b> Celebrex
<b>Codeine Allergy</b>	Codeine, hydrocodone, Lortba, Vicodin, oxycodone, Oylr, Oxycontin



# Diagnosis

People with allergy symptoms such as the runny nose of allergic rhinitis may at first suspect they have a cold, but the “cold” lingers on. Testing for allergies is the best way to find out if a person is allergic.

## ***Skin tests***

Allergists (doctors who specialize in allergic diseases) use skin tests to determine whether a person has IgE antibodies in the skin that react to a specific allergen. Skin testing is the most sensitive and least costly way to identify allergies. People with widespread skin conditions like eczema, however, should not be tested using this method.

# Treatment

## ***Medication***

If you cannot adequately avoid airborne allergens, your symptoms often can be controlled by medication.

- *Antihistamines*
- *Topical Nasal Steroids*
- *Cromolyn Sodium*
- *Decongestants*
- *Immunotherapy (allergy shots)*

# References

NIAID-NIH (October 1981). Insect Allergy. NIH Publication No. 82-1046.

USDHHS-NIH (April 2003). Airborne allergens: Something in the air. NIH Publication No. 03-7045.

# More Information

**National Institute of Allergy and Infectious Diseases**

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