

Asthma and Allergy ANSWERS

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Basic Facts about Allergies

More Americans than ever before say they are suffering from allergies. In fact, the prevalence of allergies has been increasing since the early 1980s across all ages, genders, and racial groups. Allergy symptoms can vary, depending on the type of allergic disease. Although there currently is no known cure for any allergy, they generally can be managed very effectively with proper prevention and treatment.

This fact sheet explains the general nature of allergies, including physiology, types of allergies, allergy triggers, diagnosis methods, and treatment. We hope that this material helps you better understand allergies and what you can do to manage them. Please keep in mind that this information is not meant to take the place of medical advice from your own physician.

Yuki was just five-years-old when she had her first allergic reaction to shrimp. The symptoms scared her parents more than they harmed her, but since then, she's kept her emergency medication nearby, even during school and after school activities.

Jordan's summer internship at a legal firm required that she learn to maintain the large copiers. Several weeks after she started, her hands, face, and arms were covered with a rash. "Contact dermatitis," the physician told her. Together, they determined she was allergic to the copier cleaning and ink products.

Mickey's mother had seasonal allergies for years and his brother had asthma since early childhood, but Mickey never had allergies himself until he started dating Mattie, who owned three cats. Every time he visited her apartment, he started sneezing; his throat got scratchy; and his eyes itched and watered. Medications helped, but the physician suggested he stay away from the cats or his symptoms could get worse.

What is an allergy?

Allergy is a general term that describes an overreaction of the body's immune system to substances that usually cause no reaction in most people. This overreaction to allergens, or substances that cause a reaction, can result in a variety of allergy symptoms ranging from very mild to life threatening.

Did you know . . . At least 50 million Americans – one out of five people – have some kind of allergy. Allergy is the fifth leading chronic disease in the U.S. among all ages and the third most common chronic disease among children under 18 years old.

What does the immune system have to do with allergies?

Your immune system helps protect you against a wide variety of foreign substances that you encounter every day in your environment. These substances can enter your body when you breathe, eat, touch, or inject them. Once a potentially harmful foreign "invader" enters your body, the immune system swings into action by releasing antibodies – proteins secreted in response to specific invaders – to protect you. This is how your body fights off colds, viruses, bacteria, parasites, and other health threatening agents without you even knowing it is working to do so.

The antibodies circulate in the bloodstream and are triggered into action whenever the substance that caused them to appear is re-encountered. The antibody attacks the invader and neutralizes its effect on you.

What causes an allergic reaction?

Allergies occur when the immune system *overreacts*. When a person has an allergy, or is predisposed for having an allergy, his or her immune system recognizes normally harmless substances as foreign invaders that need to be



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fought off. Allergen-specific antibodies are released to reduce the impact of that particular substance. Release of the allergen fighting antibody by the immune system triggers a series of biochemical events that result in allergy symptoms.

The first time an allergic person encounters a specific allergen, such as cat dander or a certain kind of pollen, the immune system recognizes it as a foreign substance. In response, a large amount of the IgE antibody is produced specific to that particular allergen.

Keep in mind . . . Each IgE antibody is specific for one single particular allergen.

The next time the person comes in contact with that same allergen, a chain of events is triggered within the immune system. First, the invading allergen molecules connect with the IgE antibodies which formed the first time the person encountered that allergen. The IgE antibodies are attached to a certain kind of cell known as mast cells. A mast cell can have thousands of IgE antibody receptors on its surface. Once the allergen connects with its specific IgE antibody receptor, it acts like a key in a door, causing the mast cell to open and release chemicals called mediators.

Good to know . . . Mast cells are especially prevalent in the mucus membranes of your eyes, nose, lungs, skin, and gastrointestinal tract.

The biochemical mediators released by the mast cells, including histamine, leukotrienes, and prostaglandins, are very strong and can lead to a variety of physical reactions. Some of these reactions result in the appearance of various allergy and asthma symptoms. Wheezing, itching, swelling, inflammation, or shortness of breath are all examples of allergic responses brought on by the release of these chemical mediators. Allergy symptoms can range from very mild to life threatening, depending on the person.

What kinds of substances are considered to be allergens?

Individuals can become sensitized—allergic—to a wide variety of substances found in the everyday home, school, or work environment. Some of the most common allergens which are known to trigger an allergic reaction include:

- **Pollen**, a substance which is part of the reproductive cycle in plants, trees, weeds, and grasses. For adults, hay fever (also known as allergic rhinitis, which is often

a response to pollens) is the fifth leading chronic disease and a major cause of work absenteeism, resulting in nearly four million missed or lost workdays each year.

- **Animals.** Protein-based substances such as saliva, dander (flaked skin), and urine trigger allergies. Approximately 10 million people are allergic to cat dander, the most common animal allergy.
- **Bugs.** The bodies and fecal material of dust mites and cockroach allergens are potent allergens.
- **Foods.** Nearly 90% of all food allergy reactions are cause by just eight foods: cow's milk, soy, eggs, wheat, peanuts, tree nuts, fish, and shellfish. Food allergy is more common among children than adults
- **Latex**, sometimes called natural rubber. Approximately 4% of allergy sufferers have latex allergy as their primary allergy. An estimated 10% of healthcare workers have a latex allergy.
- **Drugs.** Both prescription and over-the-counter medications can be allergens for sensitive people, with penicillin (and its derivatives) being the most common allergy trigger.
- **Insect venom.** Stings from bees, wasps, and ants can cause an allergic response. Approximately 4% of people with allergies have insect allergies as their primary allergy.

Who is likely to develop an allergy?

Allergies tend to run in the family. In other words, people generally inherit the characteristic which causes their immune systems to overreact to harmless substances (allergens). Atopy is the word used to describe this hereditary predisposition toward developing hypersensitivity reactions, such as allergies. The atopy may show up in different ways, however. For example, you may be allergic to certain foods, and your child develops allergic asthma.

Fast facts . . . If only one parent has an allergy of any type, chances are one in three that each child will have an allergy. If both parents have allergies, it is much more likely (seven in ten) that their children will have allergies.

What are the most common allergic conditions?

An allergic reaction can affect the body in various ways. Some allergic diseases are more common than others. Their names and chief characteristics are outlined below.

Allergic rhinitis (hay fever) is characterized by stuffy, itchy, runny nose, sneezing, and itching of the roof of the mouth, the throat, and/or the ears.

Allergic asthma. Symptoms of asthma include wheezing, chronic cough, difficulty breathing, and a sense of tightness in the chest. Many people experience asthma symptoms as a result of an allergy(s), but asthma is not always allergy-related.

What is asthma?

Asthma is a disease of increased responsiveness of the airways to various stimuli including allergens and irritants that cause obstruction of the airways. Constriction of muscles around the airway and inflammation result in swelling of the lining and increased secretion of mucous. The most common causes of an asthma flare up are infection, exercise, allergens, and air pollution (an irritant). Allergens and irritants are substances found in our everyday environment. People who have asthma may experience wheezing, cough, shortness of breath, and chest tightness. Asthma can begin at any age but with proper management and education, people with asthma can lead normal, active lives.

Atopic dermatitis. Also called eczema, this chronic or recurring inflammatory skin disease is characterized by patches of dry skin, scaling, flaking, and lesions.

Contact dermatitis. This is one of the most common skin diseases in adults and one of the most common occupational illnesses. Dermatitis – inflammation of the skin – results from an allergic response to something that comes in contact with the skin. Symptoms include itchy skin, a red rash, blisters or raised patches. Common triggers for allergic contact dermatitis include latex, nickel, poison oak/poison ivy, or formaldehyde (a “hidden” ingredient in many products).

Food allergy. Food allergies are often wrongly blamed for a variety of adverse reactions. For example, lactose-intolerance is a metabolic problem (your body cannot process lactose properly), not an allergy resulting from an overactive immune system. Symptoms of a food allergy include swelling of the lips or tongue; a tight feeling or hoarseness in the throat; nausea, vomiting, diarrhea; wheezing; itching of the eyes; and anaphylactic shock.

Insect sting allergy. The venom of certain insects can trigger an allergic reaction in sensitive people. Wasps, yellow jackets, honey bees, hornets, and fire or harvest

ants are the most common stingers. Symptoms include pain, itching, and swelling at the sting site or over a larger area. Insect stings can rapidly lead to anaphylaxis in some people—a life threatening medical emergency.

Anaphylaxis . . . A mild reaction to an insect sting one time does not necessarily mean every reaction will be mild. Your next sting could result in anaphylaxis, which is a severe, life threatening, allergic reaction. If you are allergic to a certain type of insect sting, talk with your physician about carrying injectable epinephrine to use in case of an emergency.

Signs of anaphylaxis, which can appear suddenly and rapidly, include:

- Swelling of the tongue and/or throat
- Difficulty breathing; rapid, shallow breathing
- Lightheadedness, dizziness, fainting
- Redness of the skin
- Intense itching over wide portions of the body
- Patches of hives
- Nausea, vomiting, stomach cramps
- Severe drop in blood pressure

Medication (drug) allergy. Certain chemicals in medications—both prescription and over-the-counter—may cause an allergic reaction. Penicillin is the most common drug allergy.

Remember . . . Many drugs are in the same “family” of medications. For example, if you are allergic, then you should be careful about taking any non-steroid, anti-inflammatory drugs (NSAID), such as Motrin or Advil. Talk with your physician or pharmacist about any adverse effects you have ever experienced in taking a medication.

Urticaria – commonly called hives – is a skin reaction characterized by itchy, raised areas (welts) surrounded by an area of red inflammation. Various foods, medications, and insect stings are the most common triggers of hives. Hives are not always caused by an allergic reaction. A proper allergy workup will help you know whether you have certain triggers for hives.

How is an allergy diagnosed?

If you suspect that you have an allergy, talk with your physician about your symptoms. The physician can help you determine if you have an allergy and what may be causing your allergy.

Your medical history. Your complete medical history is highly useful in determining factors that may be triggering an allergic response. Your physician will review medical and personal information related to your health, including details about your family background and your environment at home, work, and school.

Your experience with allergies. Be prepared to discuss your symptoms, including when they occur, how often, what you were doing at or around the time symptoms appeared, any medications you have used and their effects, and so on. If you had allergy symptoms in the past, try to recall relevant information, including treatment and how well it worked.

Skin testing. Skin tests are the most accurate of all tests for confirming an IgE-mediated allergy. These tests can be used to gauge sensitivity to many allergens. The skin is pricked with a minute amount of allergen extract to expose the patient to the allergen. Results are available within minutes. A positive response appears in the form of a red, raised wheal (a lump or welt) surrounded by a red, inflamed area, or flare. The size of the wheal and flare indicate how allergic you are to that allergen. As many as 20-30 allergens can be tested at one time (usually done on your back, which offers a large surface area).

Blood testing. Radioallergosorbent testing (RAST) is a blood test done to confirm whether your body is making allergen-specific IgE antibodies. RAST is used if you have a skin condition that makes it difficult to do skin testing or if you use medications that interfere with skin testing. RAST is not as sensitive as a skin test and may be more costly.

Your blood also may be tested to determine the eosinophil count. Eosinophils are a type of white blood cell. A high concentration of eosinophils in your blood indicates allergy activity. A nasal smear or sputum sample also may be used to get an eosinophil count.

What is the treatment for allergies?

Allergies can have a dramatic impact on your quality of life and your overall health. What's the good news? Most allergies can be treated effectively, and you can expect to lead a normal active life. Your treatment plan for an allergy will have several components.

Get a proper diagnosis. If you suspect an allergy is the cause of your misery, don't just guess – find out what is really causing the problem. Once you know what triggers your allergies, then you can take steps to manage them effectively.

Manage your exposure. Since allergies are caused by substances found in the everyday environment, your first best step is to minimize – and if possible, eliminate – any contact with allergens that trigger your allergy symptoms. This may involve such measures as remaining within a well air conditioned home or building as much as possible during peak pollen seasons, learning to recognize poison ivy, avoiding certain foods, or instituting environmental controls that protect you from house dust mites and animal dander.

Take medication. Allergy symptoms, especially when mild or intermittent, often can be treated with over-the-counter (nonprescription) medications. In addition, numerous prescription medications are available that treat specific symptoms of allergies. Relief is possible for most patients who choose and use medications properly.

Allergy shots. Also referred to as allergen immunotherapy, this treatment approach has been used for decades to relieve symptoms of allergic rhinitis and asthma. Allergy shots are usually recommended when allergy symptoms are moderate to severe, occur more than two to three months each year, have not responded well to medications that can be tolerated by the patient, and are due to an allergen not easily avoided. Shots are given weekly using increasing amounts of an allergen extract injected under the skin. Regular use of shots should result in a reduction in sensitivity to known allergens. A patient is put on a maintenance program that is usually continued for several years.

Keep in mind . . . If you have had immunotherapy, and you move to another part of the country, you may need shots again if you develop sensitivity to allergens found in the new location.

Can allergy symptoms be reduced or eliminated by living in certain kinds of climate or environment?

Not really. There is no place safe from allergies in America, and some cities are more problematic than others. The Allergy Capitals, an annual research project of the Asthma and Allergy Foundation of America (AAFA),

identifies the 100 most challenging places to live with allergies in the spring and fall seasons. The rankings are based on scientific analysis of three factors for each of the 100 metro areas reviewed. The data measured and compared each year includes:

- Pollen scores (airborne grass/tree/weed pollen and mold spores). The pollen score is comprised of comprehensive recorded levels of airborne grass/tree/weed pollen and mold spores, and prevalence data for each of these specific types of allergens.
- Number of allergy medications used per patient.
- Number of allergy specialists per patient.

Visit the web site of the Asthma and Allergy Foundation of America (www.aafa.org) to obtain the most current rankings.

Can people outgrow an allergy?

Experts no longer believe that people outgrow their allergic conditions. Sometimes, an allergy can become dormant and you may be free of most or all symptoms. Still, allergic disease can return, and it is not uncommon for people to develop an allergy later in life.

Who should treat allergies?

Many patients are treated for allergies, including allergic asthma, by their pediatrician, family physician, or internist; however, if your symptoms are not under control within three to six months, or if you have severe persistent allergy or asthma symptoms, or if you are having episodes that need emergency treatment, it may be time to see a specialist. Allergists/Immunologists are specialists who treat allergies and asthma. Those who have completed training in those specialties are usually called board-certified or board-eligible. Check *Where can you find more information about asthma or allergies?* below for more information about finding a specialist.

Does health insurance cover treatment for allergies?

Most health insurance plans provide some level of coverage for allergy and asthma patients. Check with your insurance carrier for details. Some things you may want to find out might include:

- Do you need a referral to an allergy care specialist from your internist, family physician, or pediatrician?
- Does the insurance carrier offer any patient education or specialized services related to allergies in general? Specific allergies? Asthma?

- What coverage is offered for pre-existing conditions?
- What medications are not covered by your plan? (There can sometimes be a delay in approving newly released medications. Your physician may know about them, but your insurance may not cover them yet.)

Do you want to know more about allergies or asthma?

The Asthma and Allergy Foundation of America offers more than 50 fact sheets about aspects of asthma and allergies. To order additional photocopies about different topics, write to info@aafa.org.

What is the Asthma and Allergy Foundation of America?

The Asthma and Allergy Foundation (AAFA) is a not-for-profit organization providing practical information, community based services and support through education, materials, and a national network of Chapters and educational support groups. AAFA also sponsors research to find cures and better treatments for asthma and allergic diseases.

Your tax-deductible donation helps support our programs and services.

Where can you find more information about asthma or allergies and related topics?

Asthma and Allergy Foundation of America

Washington, D.C.

Information Helpline: (800)-7-ASTHMA/ (800)-727-8462

Email: info@aafa.org

www.aafa.org

American Academy of Allergy, Asthma and Immunology

Milwaukee, Wisconsin

Patient Information and Physician Referral Line:

(800) 822-2762

www.aaaai.org

American College of Allergy, Asthma & Immunology

Arlington Heights, Illinois

www.acaai.org

Nationwide allergist referral service

1-800-842-7777 toll-free

National Asthma Education and Prevention Program National Heart, Lung, and Blood Institute Information Center

National Institutes of Health

Bethesda, Maryland

<http://www.nhlbi.nih.gov/about/naepp/index.htm>

National Jewish Medical and Research Center

Denver, Colorado

Phone: (800) 222-LUNG

www.njc.org

National Institute of Allergy and Infectious Diseases (NIAID) Office of Communications

National Institute of Allergy and Infectious Diseases

National Institutes of Health

Bethesda, Maryland

<http://www.niaid.nih.gov/factsheets/allergy.htm>

The information provided in this fact sheet should not be a substitute for seeking responsible, professional medical care.