ALLERGY AND ASTHMA GUIDE

INTRODUCTION
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William Shiel Jr., M.D., F.A.C.P.
Chief Medical Editor, MedicineNet.com

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INTRODUCTION

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Allergy Facts

- Allergy involves an exaggerated response of the immune system.
- The immune system is the body's organized defense mechanism against foreign invaders, particularly infections.
- Allergens are substances that are foreign to the body and can cause an allergic reaction.
- IgE is the allergy antibody.
- Allergies can develop at any age.
- Your risk of developing allergies is related to your parents' allergy history.

What Are Common Allergic Conditions, and What Are Allergy Symptoms And Signs?

The parts of the body that are prone to react to allergies include the eyes, nose, lungs, skin, overview of common allergic disorders and stomach. Although the various allergic diseases may appear different, they all result from an exaggerated immune response to foreign substances in sensitive people. The following brief descriptions will serve as an overview of common allergic disorders

Allergic Rhinitis (Hay Fever)

Allergic rhinitis ("hay fever") is the most common of the allergic diseases and refers to seasonal nasal symptoms that are due to pollens. Year round or perennial allergic rhinitis is usually due to indoor allergens, such as dust mites, animal dander, or molds. It can also be caused by pollens. Symptoms result from the inflammation of the tissues that line the inside of the nose (mucus lining or membranes) after allergens are inhaled. Adjacent areas, such as the ears, sinuses, and throat can also be involved. The most common symptoms include:

- Runny nose
- Stuffy nose
- Sneezing
- Nasal itching (rubbing)
- Itchy ears and throat
- Post nasal drip (throat clearing)
In 1819, an English physician, John Bostock, first described hay fever by detailing his own seasonal nasal symptoms, which he called "summer catarrh." The condition was called hay fever because it was thought to be caused by "new hay".

**Allergic Eyes**

Allergic eyes (allergic conjunctivitis) is inflammation of the tissue layers (membranes) that cover the surface of the eyeball and the undersurface of the eyelid. The inflammation occurs as a result of an allergic reaction and may produce the following symptoms:

- Redness under the lids and of the eye overall
- Watery, itchy eyes
- Swelling of the membranes
- Intense itching

**Allergic Eczema**

Allergic eczema (atopic dermatitis) is an allergic rash that is usually not caused by skin contact with an allergen. This condition is commonly associated with allergic rhinitis or asthma and features the following symptoms:

- Itching, redness, and or dryness of the skin
- Rash on the face, especially children
- Rash around the eyes, in the elbow creases, and behind the knees, especially in older children and adults (rash can be on the trunk of the body)

**Allergic Shock**

Allergic shock (anaphylaxis or anaphylactic shock) is a life-threatening allergic reaction that can affect a number of organs at the same time. This response typically occurs when the allergen is eaten (for example, foods) or injected (for example, a bee sting). Some or all of the following symptoms may occur:

- Hives or reddish discoloration of the skin
- Nasal congestion
- Swelling of the throat
- Stomach pain, nausea, vomiting
- Shortness of breath, wheezing
- Low blood pressure or shock
Shock refers to the insufficient circulation of blood to the body's tissues. Shock is most commonly caused by blood loss or an infection. Allergic shock is caused by dilated and "leaky" blood vessels, which result in a drop in blood pressure.

**Hives**

*Hives* (urticaria) are skin reactions that appear as itchy swellings and can occur on any part of the body. Hives can be caused by an allergic reaction, such as to a food or medication, but they also may occur in non-allergic people. Typical hive symptoms are:

- Raised red welts

Read the full Allergy article: [http://www.medicinenet.com/allergy/article.htm](http://www.medicinenet.com/allergy/article.htm)

**What Is Asthma?**

Asthma is a chronic inflammation of the bronchial tubes (airways) that causes swelling and narrowing (constriction) of the airways. The result is difficulty breathing. The bronchial narrowing is usually either totally or at least partially reversible with treatments.

Bronchial tubes that are chronically inflamed may become overly sensitive to allergens (specific triggers) or irritants (nonspecific triggers). The airways may become "twitchy" and remain in a state of heightened sensitivity. This is called "bronchial hyperreactivity" (BHR). It is likely that there is a spectrum of bronchial hyperreactivity in all individuals. However, it is clear that asthmatics and allergic individuals (without apparent asthma) have a greater degree of bronchial hyperreactivity than nonasthmatic and nonallergic people. In sensitive individuals, the bronchial tubes are more likely to swell and constrict when exposed to triggers such as allergens, tobacco smoke, or exercise. Amongst asthmatics, some may have mild BHR and no symptoms while others may have severe BHR and chronic symptoms.

Asthma affects people differently. Each individual is unique in their degree of reactivity to environmental triggers. This naturally influences the type and dose of medication prescribed, which may vary from one individual to another.

**How Does Asthma Affect Breathing?**

Asthma causes a narrowing of the breathing airways, which interferes with the normal movement of air in and out of the lungs. Asthma involves only the bronchial tubes and does not affect the air sacs or the lung tissue. The narrowing that occurs in asthma is caused by three major factors: inflammation, bronchospasm, and hyperreactivity.
Inflammation

The first and most important factor causing narrowing of the bronchial tubes is inflammation. The bronchial tubes become red, irritated, and swollen. This inflammation increases the thickness of the wall of the bronchial tubes and thus results in a smaller passageway for air to flow through. The inflammation occurs in response to an allergen or irritant and results from the action of chemical mediators (histamine, leukotrienes, and others). The inflamed tissues produce an excess amount of "sticky" mucus into the tubes. The mucus can clump together and form "plugs" that can clog the smaller airways. Specialized allergy and inflammation cells (eosinophils and white blood cells), which accumulate at the site, cause tissue damage. These damaged cells are shed into the airways, thereby contributing to the narrowing.

Bronchospasm

The muscles around the bronchial tubes tighten during an attack of asthma. This muscle constriction of the airways is called bronchospasm. Bronchospasm causes the airway to narrow further. Chemical mediators and nerves in the bronchial tubes cause the muscles to constrict. Bronchospasm can occur in all humans and can be brought on by inhaling cold or dry air.

Hyperreactivity (hypersensitivity)

In patients with asthma, the chronically inflamed and constricted airways become highly sensitive, or reactive, to triggers such as allergens, irritants, and infections. Exposure to these triggers may result in progressively more inflammation and narrowing.

The combination of these three factors results in difficulty with breathing out, or exhaling. As a result, the air needs to be forcefully exhaled to overcome the narrowing, thereby causing the typical "wheezing" sound. People with asthma also frequently "cough" in an attempt to expel the thick mucus plugs. Reducing the flow of air may result in less oxygen passing into the bloodstream, and if very severe, carbon dioxide may dangerously accumulate in the blood.

What Triggers Cause an Asthma Attack?

Asthma symptoms may be activated or aggravated by many agents. Not all asthmatics react to the same triggers. Additionally, the effect that each trigger has on the lungs varies from one individual to another. In general, the severity of your asthma depends on how many agents activate your symptoms and how sensitive your lungs are to them. Most of these triggers can also worsen nasal or eye symptoms.

Triggers fall into two categories:

- allergens ("specific");
- nonallergens -- mostly irritants (nonspecific).

Once your bronchial tubes (nose and eyes) become inflamed from an allergic exposure, a re-exposure to the offending allergens will often activate symptoms. These "reactive" bronchial tubes might also respond to other triggers, such as exercise, infections, and other irritants. The following is a simple checklist.
Allergens

- "seasonal" pollens
- year-round dust mites, molds, pets, and insect parts
- foods, such as fish, egg, peanuts, nuts, cow's milk, and soy
- additives, such as sulfites
- work-related agents, such as latex, epoxides, and formaldehyde

Irritants

- respiratory infections, such as those caused by viral "colds," bronchitis, and sinusitis
- drugs, such as aspirin, other NSAIDs (nonsteroidal antiinflammatory drugs), and beta blockers (used to treat blood pressure and other heart conditions)
- tobacco smoke
- outdoor factors, such as smog, weather changes, and diesel fumes
- indoor factors, such as paint, detergents, deodorants, chemicals, and perfumes
- nighttime
- GERD (gastroesophageal reflux disorder)
- exercise, especially under cold dry conditions
- work-related factors, such as chemicals, dusts, gases, and metals
- emotional factors, such as laughing, crying, yelling, and distress
- hormonal factors, such as in premenstrual syndrome

The Many Faces of Asthma

The many potential triggers of asthma largely explain the different ways in which asthma can present. In most cases, the disease starts in early childhood from 2-6 years of age. In this age group, the cause of asthma is often linked to exposure to allergens, such as dust mites, tobacco smoke, and viral respiratory infections. In very young children, less than 2 years of age, asthma can be difficult to diagnose with certainty. Wheezing at this age often follows a viral infection and might disappear later, without ever leading to asthma. Asthma, however, can develop again in adulthood. Adult-onset asthma occurs more often in women, mostly middle-aged, and frequently follows a respiratory tract infection. The triggers in this group are usually nonallergic in nature.

Read the full Asthma article:
http://www.medicinenet.com/asthma/article.htm
**Allergies Quiz**

**Q: What is an allergy?**
A: An allergy may be best described as a reaction from body’s immune system to a foreign substance.

Specifically, an allergy is an exaggerated reaction by our immune system in response to bodily contact with certain foreign substances. Allergic people’s bodies recognize the foreign substance and one part of the immune system turns on. Allergens are substances that are foreign to the body and can cause an allergic reaction in certain people.

**Q: Anaphylaxis is a basic reaction to a simple allergen. True or False?**
A: False.

Anaphylaxis (anna-fill-ax-iss) is often triggered by substances that are injected or ingested and thereby gain access into the blood stream. An explosive reaction involving the skin, lungs, nose, throat, and gastrointestinal tract can then result. Although severe cases of anaphylaxis can occur within seconds or minutes of exposure and can be fatal if untreated, many reactions are milder and can be ended with prompt medical therapy.

**Q: What are examples of indoor, outdoor, food, and airborne allergens?**
A: Peanuts, cockroach parts, eggs, mold spores, animal dander, pollen, seafood, tomatoes, and dust mites are some examples of allergens.

In adults, the most common foods that cause allergic reactions are shellfish, such as shrimp, crayfish, lobster, and crab; nuts from trees, such as walnuts; fish; eggs; and peanuts.

Take the Allergies Quiz: [http://www.medicinenet.com/allergies_quiz/quiz.htm](http://www.medicinenet.com/allergies_quiz/quiz.htm)
**Asthma Quiz**

**Q: Asthma causes inflammation and narrowing of the airways in the lungs. True or False?**

**A: True.**

With asthma, there is inflammation of the air passages that results in a temporary narrowing of the airways (bronchial tree) that carry oxygen to the air sacs (alveoli) of the lungs. This results in asthma symptoms including coughing, wheezing, shortness of breath, and chest tightness.

**Q: Asthma is most common in people under 40 years of age. True or False?**

**A: True.**

Asthma affects 22 million Americans. Asthma may occur at any age, although it's more common in people under age 40.

**Q: An asthma ____________ occurs when asthma symptoms become worse than usual.**

**A: Attack**

When asthma symptoms become suddenly worse than usual, a person is said to be having an asthma attack. Severe asthma attacks can close the airways so much that vital organs do not get enough oxygen.

Take the Asthma Quiz:

http://www.medicinenet.com/asthma_quiz/quiz.htm
Nearly 20% of Americans suffer from allergies. Allergies are an abnormal response of the immune system where the body's defenses react to a usually harmless substance in the environment, such as pollen, animal dander, or food. Almost anything can trigger an allergic reaction, which can range from mild and annoying to sudden and life-threatening.

Food Allergies and Where They Hide
Most people have a reaction to food from time to time but when you're allergic to a food, your immune system reacts abnormally to that specific food. Watch this slideshow on food allergy triggers to learn about certain foods to avoid.

Pets and Allergies
Pet dander -- the dead skin that dogs, cats, and other warm-blooded animals shed -- is a common allergy trigger for many people. Watch this slideshow to get the facts on pet allergies and how to treat, prevent and avoid them.

What Happens in a Nasal Allergy Attack?
An allergic reaction is set in motion by touching, swallowing, or inhaling an allergen. Watch this slideshow to see how an allergy attack occurs and how your immune system reacts and responds.
Which Triggers Cause an Asthma Attack?

Asthma symptoms may be activated or aggravated by many agents. Not all asthmatics react to the same triggers. Additionally, the effect that each trigger has on the lungs varies from one individual to another. In general, the severity of your asthma depends on how many agents activate your symptoms and how sensitive your lungs are to them. Most of these triggers can also worsen nasal or eye symptoms.

The Anatomy of an Asthma Attack

Asthma attacks rarely happen without warning. Knowing the signs of a pending attack could help you prevent an asthma emergency and even save your life. Watch this slideshow to learn about warning sign and symptoms.

Asthma Myths

There is currently no cure for asthma, and no single exact cause has been identified. Take this slideshow quiz on asthma myths to test your IQ and take an active role in your own health by better understanding this chronic illness.

10 Worst Cities for Asthma

There is no such thing as an asthma-free city, but some are more difficult than others for people with asthma to live in. Watch this slideshow to see if your city made the list.
Patient Comments: Allergy - Symptoms

**Question: What symptoms did you experience with your allergies?**

Comment from: zymzabob, 45-54 Male (Patient) Published: August 31

I have dealt with allergies to everything from animals to grass and pollen since I was 5 years old. In my adult years, I have noticed that, while still sensitive to certain things year round, my biggest problem is from late summer until the first good frost of the season. During this time, my primary symptom is flu/cold-like. While I have minor sneezing and itchy eyes issues during this time, the biggest problem is the feeling of fatigue, sleepiness and body aches. Does anyone know of medication(s) for allergies that treat these symptoms? It seems like most allergy meds treat sneezing, coughing, congestion and itching symptoms, but nothing for fatigue and body aches that I experience annually from late summer through late fall.  

**Related Reading:** flu | fatigue | allergy

Comment from: TK, 45-54 Female (Patient) Published: May 12

Heavy swelling of the eyes. Below the eyes and eyelids.

Comment from: Ora, 65-74 Female (Patient) Published: March 30

Each morning until Mucinex begins to work, I am spitting up blobs of mucus, and I can't stop coughing. Then, after it wears off (12 hours later), the mucus and the coughing return. Before it begins to work my eyes are swollen, my face (across the eyes nose) feels swollen and bloated. I don't have energy; sometimes I have a hard time breathing. I know that I have an allergy to smoke, dust, and some animals. Out of the many things that I have used, MucinexD is the only one that stops the mucus and the coughing.

Comment from: CarolH, 55-64 Female (Patient) Published: March 16

All of a sudden I have swollen lip (alternately bottom or top lip - never both at the same time). Also eye would be swollen shut (again one at a time). I've always had sensitive skin to soaps, lotions, etc. causing skin rash or "both" eyes reacting but this is something different. We were away for three days and I was fine. I was home for about 6 hours and all of a sudden I felt my upper lip blowing up to about 4 times its thin size! It's feels like when the dentist numbs you and you try to drink - you dribble all over. This is driving me crazy.  

**Related Reading:** rash

Comment from: Allergic to grass, 35-44 Female (Caregiver) Published: January 24

Red, itchy eyes, sinuses, feeling sleepy and flu like symptoms, until I took a blood test I did not know that I was allergic to grass. This had affected me since childhood and unfortunately my five year old son is also allergic to dust mites. My late father was asthmatic.

View all Comments:

http://www.medicinenet.com/allergy/discussion-627.htm
**Patient Comments: Asthma – Effective Treatments**

**Question: What kinds of treatments have been effective for your asthma?**

Comment from: Ana, 25-34 Female (Patient) Published: November 13

I'm 32 years old. I had asthma all my life and I usually ended up in the emergency room twice a year, well there is actually 2 occasions where my asthma was completely controlled. The first one was when I was 12 or 13 years old I started seeing an allergist. I got desensitized and it worked. The treatment is based on a series of vaccines and it completely took away all my symptoms. I was a "normal" person. I jogged and danced and nothing ever got my breath away until I turned 20 or 21. After my first child it took me a long time before I found a treatment that worked, but I finally did after being in the ER twice in one week. I got an asthmatic doctor who told me he was going to give me the treatment he used and he said that I wouldn't get an attack again. Okay it was Flovent twice a day, Nasonex once in the morning, Foradil twice a day, and Singulair once a day and for the past 2 years I've been asthma free. I don't even take my Albuterol with me everywhere. I actually don't use it (I don't recommend this), but I'm truly happy with the treatment and I know is a lot, but it becomes part of your daily routine just like washing your face or brushing your teeth! I hope at least one person benefit from this comment. It has been life changing for me and I hope it would be for someone else.

Comment from: Haina, 19-24 Female (Patient) Published: October 23

I have been using Albuterol for the last 13 years, since I was eight years old. I feel that over the years, I have become extremely dependent on it. As far as other medications go, you name it, I've tried it. I think Ventolin worked the best as a fast acting inhaler. I was given Singular for a little over a year a few years back, but started to develop depression. Recently the FDA released statements saying Singulair did indeed cause depression in a lot of people who had been prescribed to use it. I have also used Advair as a longer term controller, and felt that's the best I'd ever breathed. I hardly used my albuterol inhaler while I was on Advair.

Comment from: Hope, 35-44 Female (Patient) Published: July 16

I have had asthma all my life and for the most part it was under control until I was in my early 30's but still I did relatively well after having been on Asmanex for a short time along with my Albuterol inhaler, but since they have changed it to HFA in the last year I have not been able to sustain a decent pattern of breathing. It seems that I have to use my inhaler much more regularly whereas before I could go days without it, and now I am back to using my inhaler daily up to 4 times a day. Something about this new medication and not having CFC or having HFA in it instead has definitely made it harder for me to have stability in my breathing.

View all Comments:
Suggested Reading on Allergy by Our Doctors

Related Diseases & Conditions

- **Eczema**
  - Eczema, also known as dermatitis, is a general term for many types of skin inflammation. The most common form of eczema is atopic dermatitis. The other
  - More

- **Hives**
  - Hives, also called urticaria, is a raised, itchy area of skin that is usually a sign of an allergic reaction. The allergy may be to food or medications,
  - More

- **Sinus Infection**
  - Sinus infection (sinusitis) signs and symptoms include headache, fever, and facial tenderness, pressure, or pain. Treatments of sinus infections are generally

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[http://www.medicinenet.com/allergies/focus.htm](http://www.medicinenet.com/allergies/focus.htm)
Suggested Reading on Asthma by Our Doctors

- **Sinus Infection**
  - Sinus infection (sinusitis) signs and symptoms include headache, fever, and facial tenderness, pressure, or pain. Treatments of sinus infections are generally

- **Eczema**
  - Eczema, also known as dermatitis, is a general term for many types of skin inflammation. The most common form is atopic dermatitis. The other

- **Gastroesophageal Reflux Disease (GERD)**
  - GERD (gastroesophageal reflux disease) is a condition in which the acidified liquid contents of the stomach backs up into the esophagus. The symptoms

- **Acute Bronchitis**
  - Bronchitis is a disease of the respiratory system in which the bronchial passages

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More on MedicineNet:

http://www.medicinenet.com/asthma/index.htm

http://www.medicinenet.com/asthma/related-conditions/index.htm

http://www.medicinenet.com/asthma/images-quizzes/index.htm

http://www.medicinenet.com/asthma/focus.htm
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**WebMD**

Allergies Health Center on WebMD.com
http://www.webmd.com/allergies/default.htm

Asthma Health Center on WebMD.com
http://www.webmd.com/asthma/default.htm

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http://www.emedicinehealth.com/allergies/center.htm

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