

## Asthma

### Overview

Asthma is a chronic (long-term) condition that affects the airways in the lungs. The airways are tubes that carry air in and out of your lungs. If you have asthma, the airways can become inflamed and narrowed at times.

Asthma affects people of all ages and often starts during childhood. You may wheeze, cough, or feel tightness in your chest. These symptoms can range from mild to severe and can happen every day or only once in a while. Certain things can set off or worsen asthma symptoms, such as cold air. These are called asthma triggers. When symptoms get worse, it is called an asthma attack.

An asthma action plan can help you manage your asthma. The plan may include monitoring, avoiding triggers, and using medicines.

Explore this Health Topic to learn more about asthma and living with the condition.

Find asthma guides, tip sheets, and other resources from NHLBI's [Asthma Learn More Breathe Better](#) program.

### Causes

The exact cause of asthma is unknown, and the causes may vary from person to person. However, asthma is often the result of a strong response of the immune system to a substance in the lungs. To understand asthma, it helps to understand [How the Lungs Work](#).

Normally, the body's immune system helps to fight infections. Sometimes a person's immune system responds to a substance in the environment called an allergen. When someone breathes in an allergen, such as ragweed, the immune system in the airways may react strongly. Other people exposed to the same substance may not react at all.

The immune system reacts to an allergen by creating inflammation. Inflammation makes your airways swell and narrow and possibly produce more mucus. This can make it harder to breathe. The muscles around the airways may also tighten, which is called a bronchospasm. This can make it even harder to breathe. Over time, the airway walls can become thicker.

Your asthma may have been caused partly by a viral infection or allergens in the air when you were a baby or young child. During this stage of life, your immune system is still developing.

It's not clear why one person reacts to an exposure while others do not. Genes seem to play a role in making some people more susceptible to asthma.

## **Risk Factors**

Your environment or occupation, your family history or genes, other medical conditions, your race or ethnicity, or your sex may raise your risk for developing asthma.

Asthma affects people of all ages, but it often starts during childhood. Sometimes asthma develops in adults, particularly women. This type of asthma is called adult-onset or late-onset asthma.

## **Environment or occupation**

Things in your environment, including at work or home, may raise your risk of developing asthma or make asthma symptoms worse.

- **Exposure to cigarette smoke in the womb** or in a child's first few years raises the risk of developing asthma symptoms early in life. This exposure may also affect lung growth and development.
- **Exposure to different microbes in the environment**, especially early in life, can affect how the immune system develops. These effects on the immune system may either increase or protect against the risk of developing asthma.
- **Exposures that occur in the workplace**, such as chemical irritants or industrial dusts, may also raise the risk of developing asthma in susceptible people. This type of asthma is called occupational asthma. It may develop over a period of years, and it often lasts even after you are no longer exposed.

- **Poor air quality from pollution or allergens** may make asthma worse. Pollutants may include traffic-related air pollution. Allergens in the air may include pollen, dust, or other particles.

## **Family history and genes**

Genes may play a role in the development of asthma because they affect how the immune system develops. More than one gene is likely involved. You inherit genes from your parents. Having a parent who has asthma, especially if the mother has asthma, increases the risk that a child will develop asthma.

## **Other medical conditions**

Asthma is often linked to other medical conditions, such as:

- **Allergies.** Asthma is usually a type of allergic reaction. People who have asthma often have other types of allergies. They may have food allergies or get a runny or stuffy nose from pollen. You may be at higher risk for developing asthma if you had allergic reactions in early childhood to substances in the air, such as pollen, dander, mold, or dust. The more things you are allergic to, the higher your risk of asthma.
- **Obesity** can increase the chances of developing asthma or worsening asthma symptoms. This may be because people who have obesity can have inflammation or changes in the immune system.
- **Respiratory infections and wheezing.** Young children who often have respiratory infections caused by viruses are at highest risk of developing asthma symptoms early in life.

## **Race or ethnicity**

African Americans and Puerto Ricans are at higher risk of asthma than people of other races or ethnicities. African American and Hispanic children are more likely to die from asthma-related causes than non-Hispanic white Americans.

## **Sex**

Among children, more boys than girls have asthma. Among teens and adults, asthma is more common among women than men.

## **Living With Asthma**

After being diagnosed with asthma, work with your doctor to learn how to manage it yourself. Because asthma symptoms may be different at different times, it is important to know which medicines to use to prevent and relieve symptoms. You can work with your doctor to develop a treatment plan, called an asthma action plan. Follow-up care will help to make sure your or your child's asthma is well-controlled. Staying healthy also includes avoiding asthma triggers and maintaining a healthy lifestyle.

Watch NHLBI's video [Living with and Managing Asthma](#) for more information.

## **Follow your asthma action plan**

Work with your doctor to create an asthma action plan that works for you. An asthma action plan is a written treatment plan document that describes the following.

- How to identify allergens or irritants to avoid
- How to recognize and handle asthma attacks
- Which medicines to take and when to take them
- When to call your doctor or go to the emergency room
- Who to contact in an emergency

If your child has asthma, then your child's caretakers and school staff should know about the asthma action plan. For a sample plan, see the National Heart, Lung, and Blood Institute's (NHLBI) [Asthma Action Plan](#).

Your doctor will make sure you are using your inhaler correctly. There are different types of inhalers. Review the way you use your inhaler at every medical visit. Sometimes asthma may get worse because of incorrect inhaler use.

## **Know your asthma triggers**

Asthma triggers are things that set off or worsen asthma symptoms. Once you know what these triggers are, you can take steps to control many of them.

Allergens are a common trigger for asthma.

- If animal fur triggers asthma symptoms, keep pets with fur out of your home or bedrooms.
- Keep your house as dust-free and mold-free as possible.

- Remove yourself from what is triggering your symptoms in the workplace. If you have occupational asthma, even low levels of allergen can trigger symptoms.
- Try to limit time outdoors if allergen levels are high.

Other asthma triggers include:

- **Emotional stress.** Emotional stress, such as intense anger, crying, or laughing, can cause hyperventilation and airway narrowing, triggering an asthma attack.
- **Infections, such as influenza (flu).** Get the flu vaccine each year to help prevent the flu, which can raise the risk of an asthma attack.
- **Medicines.** Some people who have severe asthma may be sensitive to medicines, such as aspirin, and may experience serious respiratory problems. Tell your doctor about all medicines you or your child currently takes.
- **Poor air quality or very cold air.** Pollution or certain kinds of weather, such as thunderstorms, can affect air quality. Pollution can include indoor pollution caused by gases from inefficient cooking or heating devices that are not vented. Outdoor air pollution may be hard to avoid, but you can keep windows closed and avoid strenuous outdoor activity when air quality is low. For guidance, check the National Oceanic and Atmospheric Administration's [Air Quality Forecast Guidance](#).
- **Tobacco smoke,** including secondhand smoke.
- **Certain foods or food additives (chemicals).** This is less common.

## Receive routine medical care

Regular checkups are important to help your doctor determine how well you are controlling your asthma and adjust treatment if needed. Your doctor will also do regular tests to see how well your lungs are working and how well air is flowing.

Your medicines or dosages may change over time, based on changes in your condition or in your life, such as:

- **Age.** Older adults may need different treatments because of other conditions they may have and medicines they may take. Beta-blockers, pain relievers, and anti-inflammatory medicines can affect asthma.
- **Pregnancy.** Your asthma symptoms may change during pregnancy. You are also at higher risk of asthma attacks. Your doctor will continue to treat you with

long-term medicines such as inhaled corticosteroids. Controlling your asthma is important for preventing complications such as preeclampsia, pre-term delivery, and low birth weight of the baby.

- **Surgery.** Asthma may increase your risk of complications during and after surgery. For instance, having a tube put into your throat may cause an asthma attack. Talk to your doctor and surgeon about how to prepare for surgery.

## **Manage your asthma at home**

Ask your doctor about asthma training or support groups to help you keep asthma under control. Education can help you understand the purpose of your medicines, how to prevent symptoms, how to recognize asthma attacks early, and when to seek medical attention.

As part of your asthma action plan, your doctor may show you how to monitor your asthma using a peak flow meter. You can compare your numbers over time to make sure your asthma is controlled. A low number can help warn you of an asthma attack, even before you notice symptoms.

Keeping a diary may help if you find it hard to follow your asthma action plan or the plan is not working well. If you have any of the following experiences, record them in the diary and make an appointment to see your doctor. Bring the diary with you to your appointment.

- You are limiting normal activities and missing school or work.
- You use your quick-relief inhaler more than two days a week.
- Your asthma medicines do not seem to work well anymore.
- Your peak flow number is low or varies a lot from day to day.
- Your symptoms occur more often, are more severe, or cause you to lose sleep.

If your young child's asthma is not well-controlled, you may notice that he or she is coughing more at night and eating less. Your child also may seem more tired (called fatigue), irritable, or moody.

## **Make healthy lifestyle changes**

Your doctor may recommend one or more of the following heart-healthy lifestyle changes to help keep asthma symptoms in check.

- **Aim for a healthy weight.** Obesity can make asthma harder to manage. Talk to your doctor about programs that can help. Even a 5% to 10% weight loss can help symptoms.
- **Choose heart-healthy foods.** Eating more fruits and vegetables and getting enough vitamin D can provide important health benefits.
- **Get regular physical activity.** Even though exercise is an asthma trigger for some people, you should not avoid it. Physical activity is an important part of a healthy lifestyle. Talk with your doctor about what level of physical activity is right for you. Ask about medicines that can help you stay active.
- **Manage stress.** Learn breathing and relaxation techniques, which can help symptoms. Meet with a mental health professional if you have anxiety, depression, or panic attacks.
- **Quit smoking or avoid secondhand smoke.** Smoking tobacco and inhaling smoke from secondhand smoke make asthma harder to treat. Vaping e-cigarettes and getting exposed to secondhand vapor may also be linked to asthma symptoms. Research suggests that nicotine and flavorings found in vaping e-cigarettes can damage your lungs. Visit [Smoking and Your Heart](#) or call the National Cancer Institute's Smoking Quitline at 1-877-44U-QUIT (1-877-448-7848).
- **Try to get good quality sleep.** Getting quality sleep can sometimes be difficult with asthma. Develop healthy sleep habits by going to sleep and getting up at regular times, following a calming bedtime routine, and keeping your bedroom cool and dark.

## **Prevent complications from asthma**

Your doctor may recommend that you keep your medicine dose as low as possible to prevent long-term side effects. High doses of certain asthma medicines over time can increase your risk of cataracts and osteoporosis. A cataract is the clouding of lens in your eye. Osteoporosis is a disorder that makes your bones weak and more likely to break. Read more in [What People With Asthma Need To Know About Osteoporosis](#).

Keep your asthma under control and contact your doctor if anything changes. When asthma is unmanaged, it can lead to potentially life-threatening asthma attacks. If you are pregnant, it can put the health of your unborn baby at risk.

## **Have a plan for asthma attacks**

A written asthma action plan developed with your doctor can help you know when to **call 9-1-1** for emergency care.

Asthma attacks can be more dangerous for some people. You should seek care immediately during an asthma attack if you or your child:

- Has been hospitalized for asthma in the past year
- Has had life-threatening asthma attacks in the past
- Recently needed oral corticosteroids
- Has not been using inhaled corticosteroids
- Uses more than one canister of inhaled short-acting beta2-agonists (SABAs) medicine each month
- Has a mental health condition or alcohol or drug use disorder
- Does not closely follow your asthma action plan
- Has a food allergy

For young children with asthma, call **9-1-1** if they:

- Seem drowsy, confused, or agitated
- Have a blue tint to the skin and lips
- Have a fast heartbeat

Call your doctor if:

- Your medicines do not relieve an asthma attack
- Your peak flow number is low

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