

What is Asthma?

Asthma is a disease in which the airways become blocked or narrowed. These effects are usually temporary, but they cause shortness of breath, breathing trouble, and other symptoms. If an asthma episode is severe, a person may need emergency treatment to restore normal breathing.

More than an estimated 17 million people in the United States have asthma. This health problem is the reason for nearly half a million hospital stays each year. People with asthma can be of any race, age or sex. Its treatment costs billions of dollars each year.

Despite the far reaching effects of asthma, much remains to be learned about what causes it and how to prevent it. Although asthma can cause severe health problems, in most cases treatment can control it and allow a person to live a normal and active life.

What Causes an Asthma Episode?

An asthma episode is triggered by things in the environment. These triggers vary from person to person, but common ones include cold air; exercise; allergens (things that cause allergies) such as dust mites, mold, pollen, animal dander or cockroach debris; and some types of viral infections.

When you breathe in, air travels through your nose and/or mouth through a tube called the trachea (sometimes referred to as the "windpipe"). From the trachea, it enters a series of smaller tubes that branch off from the trachea. These branched tubes are the bronchi, and they divide further into smaller tubes called the bronchioles. It is in the bronchi and bronchioles that asthma has its main effects.

Here is how the process occurs. When the airways come into contact with an asthma trigger, the tissue inside the bronchi and bronchioles becomes inflamed (inflammation). At the same time, the muscles on the outside of the airways tighten up (constriction), causing them to narrow. A thick fluid (mucus) enters the airways, which become swollen. The breathing passages are narrowed still more, and breathing is hampered.

Who Gets Asthma?

The process just described can be normal, up to a point. Everyone's airways constrict somewhat in response to irritating substances like dust and mold. But in a person with asthma, the airways are hyperreactive. This means that their airways overreact to things that would just be minor irritants in people without asthma.

To describe the effects of asthma, some doctors use the term "twitchy airways." This is a good description of how the airways of people with asthma are different from those without the disease. (Not all patients with hyperreactive airways have symptoms of asthma, though.)

We do not know for certain why some people get asthma and others do not. However, doctors doing research have found that certain traits make it more likely that a person will develop asthma.

Heredity. To some extent, asthma seems to run in families. People whose brothers, sisters or parents have asthma are more likely to develop the illness themselves.

Atopy. A person is said to have atopy (or to be atopic) when he or she is prone to have allergies. For reasons that are not fully known, some people seem to inherit a tendency to develop allergies. This is not to say that a parent can pass on a specific type of allergy to a child. In other words, it doesn't mean that if your mother is allergic to bananas, you will be too. But you may develop allergies to something else, like pollen or mold.

Substances in the environment that cause allergies—things like dust, mold or pollen—are known as allergens. In a person with atopy, the body responds to allergens by producing certain kinds of proteins called immunoglobulin E (IgE) antibodies. Antibodies are proteins that the body produces to fight off foreign invaders. One way to test a person for allergies is to perform skin tests with extracts of the allergens or do blood tests for IgE antibodies to these allergens.

Diagnosis:

The majority of people with asthma experience onset prior to age 5. It is commonly misdiagnosed as:

- Chronic Bronchitis, Recurrent Croup, or recurrent pneumonia

What Are Some Asthma Triggers?

If you have asthma, it is important to be aware of the things in your environment that tend to make asthma worse. These factors vary from person to person. Some of the more common factors or triggers are described here.

Allergens. In many people with asthma, the same substances that cause allergy symptoms can also trigger an asthma episode. These allergens may be things that you inhale, such as pollen or dust, or things that you eat, such as shellfish. It is best to avoid or limit your exposure to known allergens in order to prevent asthma symptoms.

Tobacco smoke. Today most people are aware that smoking can lead to cancer and heart disease. What you may not be aware of, though, is that smoking is also a risk factor for asthma in children, and a common trigger of asthma symptoms for all ages.

It may seem obvious that people with asthma should not smoke, but they should also avoid the smoke from others' cigarettes. This "secondhand" smoke, or "passive smoking," can trigger asthma symptoms in people with the disease. Studies have shown a clear link between secondhand smoke and asthma, especially in young people. Passive smoking worsens asthma in children and teens and may cause up to 26,000 new cases of asthma each year.

Exercise. Exercise—especially in cold air—is a frequent asthma trigger. A form of asthma called exercise-induced asthma is triggered by physical activity. Symptoms of this kind of asthma may not appear until after several minutes of sustained exercise. (When symptoms appear sooner than this, it usually means that the person needs to adjust his or her treatment.) The kind of physical activities that can bring on asthma symptoms include not only exercise, but also laughing, crying, holding one's breath, and hyperventilating (rapid, shallow breathing).

The symptoms of exercise-induced asthma usually go away within a few hours. With proper treatment, a child with exercise-induced asthma does not need to limit his or her overall physical activity. (See the Asthma and Allergy Answer article on, "Exercise-Induced Asthma.")

Other factors contributing to the severity of asthma. Cold air, wind, rain, and sudden changes in the weather can sometimes bring on an asthma episode. Medications like aspirin can also be related to episodes in adults who are sensitive to aspirin. Irritants in the environment can also bring on an asthma episode. These irritants may include paint fumes, smog, aerosol sprays and even perfume.

People with asthma react in various ways to these factors. Some react to only a few, others to many. Some people get asthma symptoms only when they are exposed to more than one factor or trigger at the same time. Others have more severe episodes in response to multiple factors or triggers. In addition, asthma episodes do not always occur right after a person is exposed to a trigger. Depending on the type of trigger and how sensitive a person is to it, asthma episodes may be delayed.

Each case of asthma is unique. If you have asthma, it is important to keep track of the factors or triggers that you know provoke asthma episodes. Because the symptoms do not always occur right after exposure, this may take a bit of detective work.

How Is Asthma Treated?

Asthma doesn't have to put major limits on your life. There are many things that you can do to take control of your asthma and minimize its impact on your activities.

Because each case of asthma is different, treatment needs to be tailored for each person. One general rule that does apply, though, is removing the things in your environment that you know are factors that make your asthma worse. When these measures are not enough, it may be time to try one of the many medications that are available to control symptoms.

Asthma medications may be either inhaled or in pill form and are divided into two types—quick-relief and long-term control. Quick-relief medicines are used to control the immediate symptoms of an asthma episode. In contrast, long-term control medicines do not provide relief right away, but rather help to lessen the frequency and severity of episodes over time.

Like all medications, asthma treatments often have side effects. These are usually mild and go away on their own. Be sure to ask your doctor about the side effects of the medications you are prescribed and what warning signs should prompt you to contact him or her