

## Advice From Your Allergist on Osteoporosis

Osteoporosis is a disease in which bones become fragile. With decreased strength, bones have an increased tendency to break out or fracture. The most common osteoporosis fracture sites are the small bones of the back (vertebrae), wrists, upper arms, pelvis and hips. Once a fracture occurs, there is greater chance for more fractures resulting in pain, loss of mobility and possible need for surgery.

### Who gets osteoporosis?

Osteoporosis affects more than 25 million Americans. Older individuals, especially women who have reached menopause, are most at risk. In addition to gender, other factors increase the risk of osteoporosis. Some include: family history, race, (Caucasians and Asians are at higher risk than African Americans), inadequate calcium and vitamin D intake, lack of physical activity, cigarette smoking, low body weight, excessive alcohol intake, and taking oral cortisone-like medications (glucocorticosteroids) or anti-seizure medications. Certain menstrual irregularities which are associated with estrogen deficiency also are associated with an increased risk for osteoporosis.

### What does osteoporosis have to do with asthma?

Since asthma is an inflammatory disease of the lung, chronic anti-inflammatory medications are important for most patients with asthma. Cortisone-like medications (glucocorticosteroids) are the most potent anti-inflammatory medications to treat asthma. Long term use of systemic glucocorticosteroids (for example, prednisone) can be associated with adverse effects, including the promotion of osteoporosis. In contrast, inhaled glucocorticosteroids are effective in treating asthma and have few adverse effects. Thus, your allergist will always use the lowest effective dose of prednisone or other oral glucocorticosteroid, if it is required, and inhaled rather than oral medication whenever possible.

### What can I do to help prevent osteoporosis?

- Calcium intake should be adequate.

The recommended dietary allowance is:

800 mg/day for 1-10 years of age

1200 mg/day for 11-24 years of age

1200 mg/day during pregnancy and lactation

1000 mg/day adults greater than 24 years of age

1500 mg/day for postmenopausal women

1500 mg/day for adults at risk of osteoporosis

Calcium is best absorbed if taken with meals in small amounts throughout the day. The most concentrated calcium sources are dairy products which sometimes contain Vitamin D. For example, one glass of skim milk has 302 mg of calcium and 85 calories. Low fat plain yogurt has 415 mg of calcium and 145 calories. Some people lack an enzyme to digest the milk sugar lactose. Therefore, they are lactose intolerant and may not be able to drink milk. Some of these individuals may be able to eat yogurt or hard cheese or acidophilus milk or milk products if the deficient enzyme, lactase, is added to the food. Good non-dairy sources of calcium include tofu (150 mg/4 oz), broccoli (freshly cooked, 136 mg/cup), collards (150 mg/cup), turnip greens (200 mg/cup), and sardines with bones (375 mg/3 oz).

If calcium consumption is inadequate, supplements are recommended. Attention must be paid to the amount of elemental calcium (the actual amount of calcium present) in these preparations. Taking more than 500 to 600 mg of calcium at one time or ingesting calcium with high fiber foods should be avoided as either reduces absorption. Supplements containing oyster shell, bone meal or dolomite should be avoided as they may contain lead or other toxic materials. Calcium supplementation should be discussed with your physician since excessive amounts may cause kidney stones.

- Make sure Vitamin D intake is adequate but not excessive.

The usual recommended amount is 400 International Units per day. Most multivitamins contain this amount. Doses up to 1000 IU have improved calcium absorption and bone metabolism, but higher doses are not recommended unless prescribed by a physician. Vitamin D is found in egg yolks, salt-water fish, liver, and most importantly, Vitamin D fortified milk.

- Exercise

Weight-bearing exercise is recommended. Examples of weight-bearing exercise are walking, hiking, stair climbing, jogging. The goal is to exercise every other day or four times a week. The length of time depends on the intensity of the exercise. For walking 45-60 minutes is recommended. If you have been inactive, consult your physician before beginning to create a program with gradually increasing activity.

- Avoid cigarette smoking.
- Avoid excessive alcohol use.
- If you are a woman and have reached menopause, consider estrogen replacement therapy if there are no reasons to avoid this medication.
- If you are a man taking oral glucocorticosteroids (for example, prednisone), a blood testosterone level may need to be measured to be certain the level is not low.
- Discuss osteoporosis with your physician or health care provider. If you have several risk factors for osteoporosis or you need daily prednisone to control your asthma, your physician may need to determine your bone density.

#### **Where can I find more information about osteoporosis?**

Additional information can be found in:

- *Boning Up on Osteoporosis, A Guide to Prevention and Treatment*, National Osteoporosis Foundation, 1997. (National Osteoporosis Foundation, 2100 M Street, M.W. Suit 602 Washington, D.C. 20037. Telephone: (202) 223-2226.
- *Osteoporosis, A Harvard Health Publications Special Report*. 1997. Write to Department OST, P.O. Box 380, Boston, MA 02117-0380.

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## Asthma Information

### Overview

If you frequently experience shortness of breath or you hear a whistling or wheezy sound in your chest when you breathe, you may have asthma – a chronic condition that causes inflammation and narrowing of the bronchial tubes, the passageways that allow air to enter and leave the lungs. If people with asthma are exposed to a substance to which they are sensitive or a situation that changes their regular breathing patterns, the symptoms can become more severe.

Asthma symptoms affect an estimated 26 million Americans (<http://www.cdc.gov/nchs/fastats/asthma.htm>) – 19 million adults and 7 million children – and are one of the leading causes of absences from work and school. Asthma often runs in families; according to the World Health Organization, about half the cases are due to genetic susceptibility and half result from environmental factors. Although there is no cure for asthma, effective treatments are available. Asthma can be best managed by seeing an allergist.

There are two types of asthma: allergic (caused by exposure to an allergen) and nonallergic (caused by stress, exercise, illnesses like a cold or the flu, or exposure to extreme weather, irritants in the air or some medications).

### Asthma Symptoms

- Coughing
- Shortness of breath
- Chest tightness
- Wheezing (a whistling or squeaky sound in your chest when you breathe, especially when exhaling)

### Asthma Triggers

- Outdoor allergens, such as pollens from grass, trees and weeds
- Indoor allergens, such as pet dander, dust mites, and mold
- Certain drugs and food additives
- Irritants in the air, such as smoke, chemical fumes and strong odors
- Colds, the flu or other illnesses
- Exercise (although people with asthma can benefit from some exercise)
- Stress
- Weather conditions, such as cold air or extremely dry, wet or windy weather

### Asthma Management and Treatment

Prevention of symptoms is the best strategy. A person with asthma should know what situations trigger an attack and avoid them whenever possible. If asthma attacks are severe, are unpredictable or flare up more than twice a week, consultation with an allergist can help to determine their cause and provide long-term treatment that controls or eliminates the symptoms.

### Asthma Facts and Figures

Studies show that people with asthma that see a specialist, such as an allergist, reduce their:

- Symptoms
- Emergency room visits
- Hospital stays
- Visits to the doctor because they are sick
- Missed days from work or school
- Health care costs

If asthma is left unmanaged or is misdiagnosed, it can be deadly:

- Asthma is among the most common chronic childhood illnesses, accounting for 10.5 million missed school days a year (<http://www.cdc.gov/nchs/data/nhsr/nhsr032.pdf>). It also accounts for 14.2 million lost workdays for adults ([http://www.cdc.gov/asthma/impacts\\_nation/asthmafactsheet.pdf](http://www.cdc.gov/asthma/impacts_nation/asthmafactsheet.pdf)).
- Every year, about 14 million Americans see a doctor for asthma. About 1.4 million patients visit a hospital outpatient department for asthma; almost 2 million go to a hospital emergency room.
- The number of people in the U.S. diagnosed with asthma is increasing. The greatest rise in asthma rates is among black children, with an almost 50 percent increase ([http://www.cdc.gov/media/releases/2011/p0503\\_vitalsigns.html](http://www.cdc.gov/media/releases/2011/p0503_vitalsigns.html)) from 2001 through 2009.
- Researchers estimate asthma-related costs, including the direct cost of health care and indirect costs such as decreased worker productivity, at around \$60 billion annually.

Many people with asthma manage the condition well and can live a healthy and productive life by avoiding triggers and following their allergists' instructions. If left unmanaged or misdiagnosed, asthma can be fatal; about 3,300 people die from it annually (<http://www.cdc.gov/nchs/fastats/asthma.htm>).

## Asthma Symptoms

### Overview

Asthma is a chronic lung disease that inflames and narrows the airways in the lungs. In the United States asthma affects an estimated 26 million people – many of whom aren't aware that they have it, especially if their symptoms aren't severe.

The most common symptoms are:

- Coughing, especially at night, during exercise or when laughing
- Shortness of breath
- Chest tightness
- Wheezing (a whistling squeaky sound in your chest when you breathe, especially when exhaling)
- Any asthma symptom is serious and can become deadly if left untreated.

Symptoms may be triggered by exposure to an allergen (such as ragweed), pollen, pet hair or dust mites, irritants in the air (such as smoke, chemical fumes or strong odors) or extreme weather conditions. Illness – particularly a respiratory illness or the flu – and exercise can also make you more susceptible.

A physical display of strong emotion that affects normal breathing patterns – such as shouting, crying or laughing – may also contribute to an asthma attack. Panic can prevent a person with asthma from relaxing and following instructions, which is essential during an attack. Scientists have found that rapid breathing associated with strong emotions can cause bronchial tubes to constrict, possibly provoking or worsening an attack.

Like any chronic condition, asthma can cause emotional strain. As a leading cause of work and school absences, it can have a significant effect on livelihood, education and emotional well-being. Depression may set in when people diagnosed with asthma believe that they are unable to participate in normal activities.

Asthma symptoms can happen at any time. Mild episodes may last only a few minutes and may be resolved spontaneously or with medication; more severe episodes can last from hours to days.

If you're experiencing breathing difficulties that interfere with your daily activities and decrease the quality of your life, see an allergist for diagnosis and treatment. An allergist can also help you recognize the early warning signals of an attack and coach you in ways to cope during an emergency.

# Asthma Treatment

## Overview

Asthma triggers frequently include:

- Allergens such as pollen, dust mites, cockroaches, molds and animal danders
- Irritants in the air, such as smoke, air pollution, chemical fumes and strong odors
- Medications, such as aspirin and acetaminophen
- Extreme weather conditions
- Exercise
- Stress

Allergies are just one of the factors that can trigger asthma attacks. Not all people with asthma have allergies and there are many people who have allergies but do not have asthma.

Some ongoing health problems can trigger asthma symptoms or make them worse. These include obesity, obstructive sleep apnea, acid reflux, stress and depression. Let your allergist know if you have one of these conditions so you can discuss the best approach to control both your health problem and your asthma symptoms. Colds and sinus infections can also worsen your asthma.

Effective treatment of allergic asthma includes identifying and avoiding allergens that trigger symptoms, using drug therapies and developing an emergency action plan for severe attacks. Your allergist may also recommend that you monitor your asthma by using a peak flow meter. This small handheld device allows you to measure how much air you are able to push out through your lungs. If your airflow is low, your allergist may recommend changes to your treatment plan, such as additional behavioral or environmental changes or a different asthma medication.

## Use Proper Asthma Medication

There are many effective medicines to treat asthma. Most people with asthma need two kinds: quick-relief medicines and long-term control medicines. Immunotherapy (allergy shots) can also be helpful.

Patients may be reluctant to take medication because of cost or the potential side effects. If you have such concerns, talk with your allergist. Your allergist will work with you to find the right medicine, or combination of medicines, to manage your asthma and will adjust the dosage based on your symptoms and control. The goal is to have you feel your best with the least amount of medicine.

Quick-relief medicines are taken at the first sign of symptoms for immediate relief:

- Short-acting inhaled beta2-agonists
- Anticholinergics

Both types of drugs are bronchodilators, meaning that they expand the passageways into the lungs (the bronchi), allowing more air in and out and improving breathing. They also help to clear mucus from the lungs by enabling the mucus to move more freely and get coughed out more easily.

If you have exercise-induced bronchoconstriction (EIB), also known as exercise-induced asthma, your allergist may recommend that you use these medicines before exercise or other strenuous physical activity.

Quick-relief medicines can stop asthma symptoms, but they do not control the airway inflammation the causes the symptoms. If you find that you need your quick-relief medicine to treat asthma symptoms more than twice a week, or two or more nights a month, then your asthma is not well controlled.

Long-term control medicines are taken every day to prevent symptoms and attacks:

- Antileukotrienes or leukotriene modifiers
- Cromolyn sodium and nedocromil
- Inhaled corticosteroids
- Long-acting inhaled beta2-agonists (always administered with another asthma-related drug)
- Methylxanthines
- Oral corticosteroids
- Immunomodulators

These medicines are taken every day, even if you do not have symptoms. The most effective long-term control medicines reduce airway inflammation and help improve asthma control.

### **Corticosteroids and health risks**

Steroids are powerful drugs that can be dangerous when not taken as prescribed. The best available medical research shows that when taken as directed, inhaled corticosteroids – a kind of steroid – are safe and well tolerated, and are one of the most effective medications for asthma treatment.

Some studies have suggested that inhaled corticosteroids may slightly reduce the rate of growth in children, perhaps by 1 centimeter (less than half an inch) per year. The reduction may be related to dosage and the length of time the child takes the drug. The long-term effect of any reduction in growth rate on final adult height is unknown. Any allergist prescribing corticosteroids to treat a child with asthma will recommend the lowest effective dose of these drugs and will monitor the child's growth.

Your allergist will work with you to find the right medicine, or combination of medicines, to manage your asthma, and will adjust the dosage based on your symptoms and control. The goal is to have you feel your best with the least amount of medicine.

Discuss any concerns with your child's allergist. Never change or discontinue prescribed asthma medications unless advised by your or your child's doctor.

### **Immunotherapy**

Two types of immunotherapy are available: allergy shots and sublingual (under the tongue) tablets.

- Allergy shots: If your asthma is triggered by an allergy, you should consider allergy shots, which are very effective in relieving allergy symptoms and in some cases can actually cure your allergy. The treatment, which can take several years, builds up immunity to your offending allergens (pollens, dust mite, pets, mold). It works by injecting small amounts of the allergen in gradually increasing amounts over time. As the shots help the body build up a tolerance to the effects of the allergen, they eventually reduce and can even eliminate your allergy symptoms.
- Sublingual tablets: This type of immunotherapy was approved by the Food and Drug Administration in 2014. Starting several months before allergy season begins, patients dissolve a tablet under the tongue daily. Treatment can continue for as long as three years. These medications should not be used in patients with severe or uncontrolled asthma. Only a few allergens (certain grass and ragweed pollens) can be treated now with this method, but it is a promising therapy for the future.

### **See an allergist, an asthma specialist**

An allergist can help you learn more about your asthma and develop a treatment plan that works for you. You should see an allergist if:

- Your asthma symptoms occur every day and often at night, limiting your activity.
- You've had a life-threatening asthma attack.
- Your goals for asthma treatment haven't been met after three to six months, or your doctor believes that you aren't responding to current treatment.
- Your symptoms are unusual or hard to diagnose.
- You have conditions such as severe hay fever or sinusitis that complicate your asthma or your diagnosis.
- Additional tests are needed to find the causes of your symptoms.
- You need more help and instruction on your treatment plan, medicines or asthma triggers.
- Allergy shots might help you.
- You need oral corticosteroid therapy or high-dose inhaled corticosteroids.
- You've taken oral corticosteroids more than twice in one year.
- You have been hospitalized because of your asthma.
- You need help to identify your asthma triggers.

Consultation with an asthma specialist is recommended if your child is 4 years old or younger and has asthma symptoms every day and three to four nights or more a month. It should be considered if your child has symptoms three days or more a week and one to two nights a month.

Although asthma symptoms are controllable, a cure for asthma has remained elusive. Preventive treatment should minimize the difficulties caused by asthma and allow a normal, active lifestyle.

## Who Has Asthma and Why

If you frequently experience shortness of breath or you hear a whistling or wheezing sound in your chest when you breathe, you may have asthma.

### Overview

Asthma symptoms affect an estimated 26 million Americans (<http://www.cdc.gov/nchs/fastats/asthma.htm>) and are one of the leading causes of absences from work and school. Although asthma has no cure, effective treatments are available; the condition can be best managed by seeing an allergist.

### What causes asthma?

Asthma is a chronic inflammation and obstruction of the bronchial tubes, the airways that allow air to enter and leave the lungs. People often think of asthma in terms of episodes or attacks. Actually, someone with asthma always has it, but the symptoms may not appear until triggered by something that provokes a response in the body, such as exercise, cold air, stress, illness, and irritants in the air, certain medications or an allergen.

Allergens are substances that cause no problem in most people but produce an abnormal reaction in some. When someone who is sensitive to an allergen is exposed to it, his or her immune system "sees" it as a foreign substance and releases chemicals to deal with it. For people with asthma, those chemicals can cause an asthma attack – meaning that their airways become constricted, they find it difficult to breathe and they may experience coughing or wheezing.

## Common Asthma Triggers

- Outdoor allergens, such as pollens from grass, trees and weeds
- Indoor allergens, such as pet dander, dust mites and mold
- Irritants in the air, such as smoke, chemical fumes and strong odors
- Exercise (although people with asthma can benefit from some exercise)
- Stress
- Weather conditions, such as cold air or extremely dry, wet or windy weather

## **Colds, flus and other illnesses**

- Viral respiratory infections, including the flu, are the leading cause of acute asthma attacks. (Surprisingly, bacterial infections, with the exception of sinusitis, do not bring about asthma attacks.)
- Some people with heartburn can have asthma symptoms when stomach acid backs up into the esophagus.

## **Drugs and food additives**

- Up to 20 percent of people with asthma are sensitive to aspirin, products that contain aspirin or other over-the-counter pain relievers, such as ibuprofen. People with asthma should discuss with their allergist whether these products should be avoided.
- Beta blockers, which often are prescribed for high blood pressure, glaucoma, migraine headaches and angina, can cause bronchospasm, an airway constriction. Patients with asthma should consult an allergist about the use of these medications.
- Food additives rarely trigger asthma. The most common food trigger for asthma is sulfite, a preservative used in such products as frozen potatoes and some beers and wines.

## **Asthma vs. Allergic Disease**

Asthma is a chronic condition; allergies are just one of the factors that can trigger an asthma attack. Not all people with asthma are allergic, and there are many people who have allergies but do not have asthma.

## **Exercise-Induced Bronchoconstriction (EIB)**

If you start wheezing or coughing during exercise, or if physical exertion makes it difficult for you to breathe, you may have exercise-induced bronchoconstriction, or EIB (also known as exercise-induced asthma).

### **Exercised-Induced Bronchoconstriction (EIB) Symptoms**

- Shortness of breath or wheezing
- Decreased endurance
- Tightness in the chest
- Shortness of breath
- Cough
- Upset stomach
- Sore throat

### **Exercise-Induced Bronchoconstriction (EIB) Triggers**

- Hyperventilation during exercise, particularly in cold, dry air
- Airborne irritants related to specific sports

### **Exercise-Induced Bronchoconstriction (EIB) Management and Treatment**

- Avoid triggers by making changes to your exercise routine.
- See an allergist for prescription medications, which may be more effective than over-the-counter treatments.



## Symptoms

Exercise-induced bronchoconstriction, or EIB, is the preferred term for what was known for years as exercise-induced asthma. Symptoms develop when airways narrow as a result of physical exertion. EIB is caused by the loss of heat, water or both from the lungs during exercise as a result of quickly breathing in air that is drier than what is already in the body. As many as 90 percent of people with asthma also have EIB, but not everyone with EIB has asthma.

Common symptoms of EIB include:

- Shortness of breath or wheezing
- Decreased endurance
- Tightness in chest
- Cough
- Upset stomach
- Sore throat

Symptoms typically appear within a few minutes after you start exercising and may continue for 10 to 15 minutes after you finish your workout. Anyone can experience these symptoms (especially someone who is out of shape), but with EIB, they are more severe than would be considered normal.

## Diagnosing EIB

An allergist can determine whether your symptoms are exercise-induced alone, are a reaction to allergens or irritants in the air, or are an indication of underlying asthma. Wheezing in children after physical activity is often the first symptom of asthma.

As part of an examination, your allergist will take a history (including asking for information about any relatives with asthma or other breathing difficulties). You also may be asked for specific details about your physical activity, including where and how often you exercise. Your allergist will consider contributing or complicating conditions, such as upper-airway problems, that might play a role in your difficulties with exercise.

To check how exercise affects your breathing, your allergist may measure your breathing before, during and after you run on a treadmill or ride an exercise bike. During the test you will breathe into a tube that connects to a spirometer, a device that measures the volume of air being inhaled and exhaled.

In some cases, environmental factors may contribute to EIB. Skaters and hockey players may be affected by a combination of cold, dry air in ice rinks and pollutants from ice-resurfacing machines, while EIB in distance runners has been linked to exercising in high-allergen and high-ozone environments. In addition, indoor air with high levels of trichloramine, a chemical used in pool chlorination, has been linked to asthma and EIB in swimmers.

## Management and Treatment

While it was thought for years that breathing cold air exacerbated EIB, more recent studies indicate that the dryness of the air, rather than the temperature, is the more likely trigger. Cold air typically contains less moisture than warm air, and quickly breathing dry air dehydrates the bronchial tubes, causing them to narrow and restrict airflow.

Before the 2010 Winter Olympics, The New York Times (<http://well.blogs.nytimes.com/2010/01/13/why-do-so-many-winter-olympians-have-asthma>) reported that as many as half of all elite cross-country skiers, and almost that many world-class figure skaters and hockey players, have been diagnosed with EIB.

Here are some suggestions to relieve symptoms of EIB:

- Warm up with gentle exercises for about 15 minutes before you start more intense physical activity.
- Cover your mouth and nose with a scarf or face mask when you exercise in cold weather.
- Try to breathe through your nose while you exercise. This helps warm the air that goes into your lungs.

Sports and activities least likely to cause EIB symptoms:

- Sports that require only short bursts of activity, including volleyball, gymnastics, baseball, wrestling, golf, swimming, football and short-term track and field events. Some swimming events can demand constant activity, but the warmth and humidity from the water make it easier for people with EIB to breathe.
- Activities such as walking, hiking and recreational biking.

Sports and activities most likely to cause EIB symptoms:

- Sports or activities that require constant activity or are done in cold weather, such as soccer, basketball, long-distance running, ice hockey, ice skating and cross-country skiing.

Two types of medicines used to treat asthma are prescribed to prevent and treat EIB symptoms. They are most frequently administered through an inhaler, although some are available in tablet form:

- Short-acting inhaled beta2-agonists (bronchodilators) stop symptoms right away. They may be taken 15 to 30 minutes before vigorous exercise and generally prevent symptoms for two to four hours.
- Long-term control asthma medicines are taken every day to prevent symptoms and attacks
  - *Inhaled corticosteroids*. These help to relieve narrowing and inflammation of the bronchial tubes and are the most commonly prescribed type of long-term asthma medication. It may be two to four weeks before these drugs reach their maximum effect.
  - *Long-acting inhaled beta2-agonists (bronchodilators)*. Taken 30 to 60 minutes before exercise starts, these medications help prevent symptoms for 10 to 12 hours. They should be used only once within a 12-hour period, and they should be taken only in combination with an inhaled corticosteroid.

Elite athletes should check with the governing bodies of their sport about the medicines they are allowed to take to relieve their EIB or asthma symptoms. Another resource is the Prohibited List (<http://list.wada-ama.org/>) published by the World Anti-Doping Agency. Some medications (including, with some specific exceptions, beta2-agonists) are considered to be performance-enhancing drugs and cannot be used by athletes in competition unless a Therapeutic Use Exemption (<http://www.usada.org/substances/tue/>) is granted for medical need.

If you continue to experience symptoms with exercise despite these recommendations, see your allergist to discuss what your next steps may be.

## Chronic Obstructive Pulmonary Disease (COPD)

### Overview

Chronic obstructive pulmonary disease (COPD) is a collection of lung diseases that cause breathing problems and airflow obstruction. Included in this group of diseases are refractory (severe) asthma, emphysema and chronic bronchitis.

A second anaphylactic reaction, known as a biphasic reaction, can occur as long as 12 hours after the initial reaction.

Just because an allergic person has never had an anaphylactic reaction doesn't mean that one won't occur in the future.

### **Symptoms**

- Difficulty breathing
- Wheezing
- Frequent coughing
- Tightness in the chest
- Poor exercise tolerance

### **Diagnosis**

- COPD is diagnosed most frequently in certain groups:
  - People between the ages of 50 and 74
  - Current and former smokers
  - People with a history of severe asthma
  - People with long-term exposure to air irritants, including industrial chemicals and tobacco smoke
  - People with a family history of COPD

While COPD has long been thought to be an ailment most frequently diagnosed in older white men, a 2013 report by the American Lung Association found that women are 37 percent more likely than men to have the disease and account for more than half the COPD deaths in the United States.

Although symptoms may not always be severe, COPD is serious and can be deadly. Early diagnosis and treatment may change the course of the disease and slow its progression.

An allergist can diagnose and treat COPD and other respiratory conditions, such as asthma, with an evaluation that includes a medical history, a physical exam and appropriate tests. If you report that you are having difficulty breathing, expect your allergist to conduct a breathing test, known as spirometry. This quick and efficient exam tells how well your lungs are working by measuring how much air they can hold and how quickly air moves in and out.

Your allergist also may suggest a chest CT scan and a chest X-ray. After you receive a diagnosis, your allergist will go over treatment options with you and discuss lifestyle changes that might help you feel better.

### **Management and Treatment**

People with COPD may not know they have it until their disease is in its "moderate" stage, meaning that they are experiencing frequent shortness of breath, coughing and heavier-than-normal mucus. Misdiagnosis can occur because the symptoms of COPD mimic other respiratory conditions, such as asthma. In 2011, chronic lower respiratory diseases – primarily COPD – was the third leading cause of death in the United States, according to the Centers for Disease Control and Prevention (CDC).

While an estimated 15 million Americans have been diagnosed with COPD, according to 2011 statistics from the CDC, the number of sufferers may be higher. More than 50 percent of adults with low pulmonary function were not aware that they had COPD, the CDC found.

Treating COPD isn't a one-size-fits-all approach. Each patient will receive a treatment plan customized for his or her specific needs. Treatment may include medication to help alleviate symptoms, supplemental oxygen and pulmonary rehabilitation. Some lifestyle changes may also be recommended, such as exercise, breathing

techniques and avoidance of air pollutants at home and at work. For smokers, the most important part of treatment will be quitting the use of tobacco.

Because respiratory illnesses, such as the flu, can cause serious complications in people with COPD, those people should get a yearly flu vaccination. A pneumococcal vaccine is also recommended.

## **Asthma Facts**

- Asthma is a chronic inflammation of the lung airways that causes coughing, chest tightness, wheezing or shortness of breath.
- The number of Americans with asthma grows every year. Currently, 26 million Americans have asthma.
- Asthma mortality is almost 4,000 deaths per year.
- Patients with asthma reported 13.9 million visits to a doctor's office and 1.4 million visits to hospital outpatient departments.
- Asthma results in 456,000 hospitalizations and 2.1 million emergency room visits annually.
- Asthma is the most common chronic illness in childhood, accounting for 10.5 million missed school days each year. It also accounts for 14.2 million lost work days for adults.
- The estimated economic cost of asthma is \$20.7 billion annually.
- Direct medical expenditures associated with asthma, including hospital care, physicians' services and medications, are estimated at \$15.6 billion annually.
- Indirect medical expenditures, including decreased worker productivity and lost work days for adults suffering from asthma or caring for children with asthma, and other losses total \$5.1 billion annually.
- Triggers that can initiate an asthma attack include allergens such as pollen, dust, animal dander, drugs and food additives, as well as viral respiratory infections and physical exertion.
- Asthma is often hereditary.
- Weather conditions such as extremely dry, wet or windy weather can worsen an asthma condition.
- Effective asthma treatment includes monitoring the disease with a peak flow meter, identifying and avoiding allergen triggers, using drug therapies including bronchodilators and anti-inflammatory agents, and developing an emergency plan for severe attacks.
- There are two types of asthma medications: long-term control and quick-relief medications. Long-term control medications are preventive, taken daily to achieve and maintain control of asthma symptoms. Quick-relief medications are used to treat asthma attacks. They relieve symptoms rapidly and are taken on an as-needed basis.
- One of the most effective medications for controlling asthma is inhaled corticosteroids, which are anti-inflammatory medications. Taken early and as directed, these well-tolerated and safe medications can improve asthma control and normalize lung function.
- Immunotherapy or allergy shots should be considered if asthma is triggered by exposure to unavoidable allergens, or if symptoms occur three days a week and more than two nights a month. The shots are especially helpful when symptoms occur year-round or are not easily controlled with medication.
- Allergists are the medical specialists with the most expertise in treating asthma. An allergist can find the source of your suffering and stop it. To find an allergist, visit [AllergyAndAsthmaRelief.org](http://AllergyAndAsthmaRelief.org).
- The greatest rise in asthma rates is among black children with an almost 50 percent increase from 2001 to 2009.

## **Fact Sheet: Efficacy and Safety of Immunotherapy**

Immunotherapy, provided by qualified physicians, is an effective and safe treatment for asthma, allergic rhinitis and insect venom allergy.

### **Effective treatment for asthma**

A meta-analysis of 20 published prospective studies showed that allergen immunotherapy is effective in the treatment of asthma.(1) The American College of Allergy, Asthma & Immunology (ACAAI) recently compiled an annotated bibliography of 59 articles from the medical literature indicating the value of expert care and immunotherapy for asthma.(2) A meta-analysis of 23 published studies involving 935 asthmatic patients with documented allergy indicated that immunotherapy is effective in a selected population of allergic asthmatic patients.(3)

### **Effective treatment for allergic rhinitis**

An extensive review of immunotherapy for allergic rhinitis in children showed that the only treatment able to affect the natural cause of the disease is immunotherapy, and that immunotherapy may prevent the onset of asthma.(4) A meta-analysis of 18 published studies involving 789 patients concluded that immunotherapy is highly effective in the treatment of allergic rhinitis.(5)

### **Effective treatment for insect venom allergy**

Immunization with insect venom is an extremely effective treatment for preventing future systemic reactions to insect stings in individuals with previously demonstrated susceptibility.(6) A meta-analysis of nine published studies indicated that a course of immunotherapy is highly effective in the management of insect sting hypersensitivity.(7)

### **Immunotherapy safety**

A report from the Mayo Clinic on 79,593 immunotherapy injections over a 10-year period showed the incidence of adverse reactions to be less than two-tenths of 1 percent (0.137 percent). Most of the reactions were mild and responded to immediate medical treatment. There were no fatalities.(8)

More than 1 million injections were given without fatality to 8,706 patients in allergy clinics in Roosevelt Hospital, New York City, between 1935 and 1955.(9)

### **Comparative risks of immunotherapy**

Nevertheless, rare occurrences of fatal anaphylactic episodes related to immunotherapy continue to be reported and studied. A total of 35 deaths following immunotherapy administration were reported for the years 1985 through 1993. It has been estimated that during that period there were 52.3 million immunotherapy procedures, making the incidence of fatality less than one per million (0.6692 per million).(10) Data recently compiled by the Allergen Products Manufacturers Association (APMA) estimated the incidence of fatalities about three per 190 million annual injections, or approximately one per 63 million injections.(11) Another study evaluating 13 international fatalities related to immunotherapy between 1992 and 1996 identified an elevated risk for patients with active asthma and being switched to high doses.(12)

For perspective, it is useful to compare these statistics with the incidence of fatalities related to other kinds of injections. Studies of fatal anaphylaxis reactions to injected penicillin have ranged from 0.4 fatalities per million injections(13), to 1 fatality per 7.5 million injections.(14)

Fatalities related to radiocontrast "dyes" used in intravascular radiologic studies in the early 1980s varied from 1 in 13,000 procedures(15) to 1 in 75,000 procedures.(16) A more recent study showed a substantial improvement to about 1 fatality in 169,000 procedures.(17)

### **Guidelines for safe and effective immunotherapy**

Any immunotherapy fatality, no matter how rare, is unacceptable. To promote immunotherapy safety, the American College of Allergy, Asthma & Immunology offers the following guidelines:

1. Immunotherapy should be prescribed only by an allergist-immunologist or other physician who is expertly trained in the therapy.
2. Immunotherapy should be administered under the supervision of an allergist-immunologist or other physician specifically trained in immunotherapy, the early signs and symptoms of anaphylaxis, and appropriate emergency procedures and medications.(18)
3. Patients must be suitably selected for immunotherapy.
4. Immunotherapy should be given only in facilities equipped to treat anaphylaxis.
5. The health status of the patient should be evaluated prior to every injection. Patients, who are acutely ill, especially with asthma or respiratory difficulties, should not receive immunotherapy until their disease is stabilized.
6. Patients should always be asked about current medications prior to immunotherapy, to avoid interactions with beta blockers and other conflicting medications.
7. Patients must wait at the health care facility a minimum of 20 minutes after an allergen injection. The time period may be extended for high-risk patients.(19, 20)

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## **FACT SHEET**

### **How Allergy Shots Can Help Control Increasing Asthma Rates**

- Asthma, a chronic inflammation of the lung airways characterized by wheezing, coughing, chest tightness and shortness of breath, affects 17 million Americans.
- Since 1980, asthma has increased by 160 percent among children age 4 and younger.
- Approximately 80 percent of all asthma in children and half of all asthma in adults are caused by allergy.
- An international conference, "Immunotherapy in Allergic Asthma," hosted by the American College of Allergy, Asthma & Immunology (ACAAI) in 2000, concluded that immunotherapy (allergy shots) is an effective treatment for allergic asthma, and can prevent the onset of asthma in children with allergic rhinitis.
- The Preventive Allergy Treatment (PAT) study, published in the February 2002 issue of the Journal of Allergy and Clinical Immunology (JACI), confirms the ACAAI conference conclusions. The study documents that immunotherapy reduces the risk of developing asthma and reduces lung airway inflammation in children with hay fever, a condition that predisposes them to asthma.
- The study followed 205 patients ages 6 to 14 from six pediatric centers in Sweden, Norway, Denmark, Finland, Austria and Germany; a total of 191 patients completed the study. The children all had proven allergies to birch or grass pollen or both. Before the start of immunotherapy, more than 20 percent (40 of 191) children had asthma symptoms during pollen season, even though they initially reported no history of asthma; 151 children had no asthma symptoms.
- The children were randomly assigned to receive either medications alone to control their symptoms or those medications and allergy shots that treated their allergic condition; they were tested for symptoms of asthma after three years of treatment. Among those who had no asthma prior to treatment, only 24 percent of those receiving allergy shots (19 of 79) developed asthma, compared to 44 percent of those who did not receive shots (32 of 72).

The ACAAI is a professional medical organization comprising 4,200 allergists-immunologists and related health professionals dedicated to the clinical practice of allergy, asthma and immunology through education and research to promote the highest quality patient care.

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## **Flu Shots Urged for People with Asthma**

If you have asthma, you should consider getting a flu shot each fall. People with asthma are at higher risk for flu complications.

The flu season usually begins in October and can run through May. During a typical flu season there can be 30,000 or more flu-related deaths.

### **Injection Recommended**

A flu vaccination can be administered by injection or by nose (intransal). The recommended method for asthmatics is injection because it is more effective, and because the intransal vaccine is indicated only for healthy people ages 5 through 49.

People with allergic rhinitis are not at increased risk for influenza complications, but immunization is recommended to reduce the possibility of getting the flu. An intramuscular injection also is appropriate for those with rhinitis.

### **Vaccine is Safe**

The influenza vaccine is considered very safe. Because it contains killed virus, it cannot cause the influenza. The most common side effects may be some pain or swelling at the site of the injection or a slight fever. Some people have expressed concern about a vaccine ingredient, thimerosal, which is a preservative; however there is no evidence of problems with the small amounts that are in some vaccine products.

If you have questions, ask your allergist or pharmacist.

This advisory for asthma patients about influenza vaccinations has been developed by a Liaison Council of the American College of Allergy, Asthma and Immunology (ACAAI) and the American Pharmacists Association (APhA).

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## **Position Statement on the Administration of Immunotherapy Outside of the Prescribing Allergist Facility**

This statement was developed by the Drugs and Anaphylaxis Committee of the American College of Allergy, Asthma and Immunology. It was approved by the ACAAI Board of Regents on the recommendation of the Executive Committee on April 25, 1998.

This statement addresses some of the issues concerning the administration of immunotherapy outside of the prescribing allergist's office, in particular, the primary care physician's office. It has been a fairly common and acceptable practice for the allergist to arrange for immunotherapy to be administered by the primary care physician in instances where it may be inconvenient for the patient to travel to the allergist's office. Presumably, the decision to arrange for the immunotherapy to be administered outside of the allergist's office is made by the allergist on an individual basis weighing the risks versus benefits in each case. However, in recent years, managed care has evolved to play a more dominant role in health care decision making. Some managed care companies are insisting that the primary care physician administers immunotherapy.

The allergist may feel that the administration of immunotherapy outside of his/her office, especially in higher risk patients, presents an unacceptable medical risk for the patient. In addition, in some cases the primary care physicians may be uncomfortable with the technical aspect of immunotherapy and/or lack the appropriately trained personnel and resuscitative equipment. Facilities for proper storage of allergen extract must be available. By accepting the responsibility of allergen extract administration, the primary care physician is agreeing to provide knowledgeable and adequately supervised administration of allergen extract and treatment of emergencies. The decision for administration at the primary care physician's office should be acceptable to both the patient and the primary care physician.

### **Background**

Fatalities from immunotherapy injections have been reported but are rare; one fatality per 63 million injections.(1) Risk factors associated with these fatalities include dose errors; seasonal exacerbation of allergic disease, especially symptomatic asthma; high degree of allergen sensitivity; injections from a new vial; and, beta-blocker use. The majority have occurred within 20 minutes of receiving the injection and led to the American Academy of Allergy, Asthma and Immunology's 1990 position statement concerning the waiting period after immunotherapy.(2) The twenty-minute waiting period should be extended in high-risk patients. Non-fatal systemic reactions from immunotherapy injections are more common and have been reported to occur at a rate of .05 to 3.2 per 100 injections (mean 0.5%).(3) These rates do not distinguish between the build-up or maintenance phase, but clinical experience suggests that there is a greater risk of a systemic reaction during the build-up phase.

Patients who appear to be at greater risk for severe systemic reactions include:

- Patients with currently symptomatic asthma.
- Patients with high degree of allergen test activity.
- Patients being treated with beta-blockers.
- Patients suffering exacerbation of their allergic disease (especially asthma).(4)

Prior position statements have provided guidelines on appropriate personnel and resuscitative equipment to treat systemic reactions.(5) Recommended equipment includes:

- Stethoscope and sphygmomanometer.
- Tourniquet and large bore needles.
- Aqueous epinephrine HCl, 1:1000.
- Equipment to administer oxygen by mask.
- Intravenous fluid set-up.
- Oral airway.

- Diphenhydramine or similar antihistamine.
- Aminophylline for intravenous injection.
- Corticosteroids for intravenous injection.
- Vasopressor.

It has been recommended that allergen immunotherapy should be given in settings where emergency resuscitative equipment and trained personnel are immediately available to treat systemic reactions under the supervision of a physician (6) or licensed physician extender. The trained personnel should be familiar with the following procedures:

- Adjustment of dose of allergen immunotherapy extract to minimize reactions.
- Recognition and treatment of local and systemic reactions to immunotherapy injections.
- Basic cardiopulmonary resuscitation.
- Ongoing patient education in recognition and treatment of local and systemic reactions that occur outside the physician's office.

**Position regarding Administration of Allergen Immunotherapy in the Primary Care Physician's Office or Other Facility Outside the Prescribing Allergist's Office**

The standard of care concerning the administration of immunotherapy should be the same regardless of where the immunotherapy is given and the specialty of the supervising physician. The decision of where the patient is to receive the immunotherapy should be made by the prescribing allergist after assessing the patient's risk profile. The allergist should determine that the patient is not at high risk for severe systemic reactions to immunotherapy injections and does not require the added expertise of a trained allergist in the supervision of the immunotherapy administration before allowing for the administration of the immunotherapy outside of his/her office.

It is the responsibility of the treating allergist to provide detailed instructions to the primary care physician or other facility concerning:

1. Adjustment of allergen doses during the buildup phase as well as at maintenance
2. New vials
3. Seasonal allergen peaks
4. Missed injections
5. Follow-up to local and systemic reactions

The allergen extract vials should be clearly labeled with contents, potency, expiration date, and patient's full name. It is desirable that the allergist provide a suggested protocol for treating local and systemic reactions along with a list of recommended resuscitative equipment. The primary care physician and the patient should be informed of the current guidelines concerning waiting period after immunotherapy injections. As many reactions occur when a patient receives, in error, injections from another patient's allergen vials, it would be advisable to attach a patient's photo to the allergen extract dosage instruction sheet. This would make misidentification less likely.

The medical instructions should include recommended qualifications for administering and supervising medical personnel. The primary care physician should ensure that the health care workers administering the immunotherapy injections are properly trained in the recognition and treatment of local and systemic reactions to allergen extracts as well as proper immunotherapy administration technique.

If patients fall into the high-risk category (see above), the allergist should consider treating them more cautiously and may need to supervise their immunotherapy regimen personally. The allergist has more experience and training in allergen immunotherapy than the primary care physician; thus is more likely to recognize signs and symptoms of a systemic reaction in the earliest stages and to initiate early treatment which may decrease the likelihood of a more serious outcome. In addition, the allergist's personnel are likely to have greater experience and training in the recognition and treatment of systemic reactions to immunotherapy injections and involve the

physician at an earlier phase of reaction. They are also more likely to have greater knowledge of proper immunotherapy administration protocol and dose adjustment, which should in turn lead to less immunotherapy errors.

In summary, the standard of care for the supervision of allergen immunotherapy should be the same wherever it is administered and not be affected by the specialty of the supervising physician. The decision concerning the appropriate place for the allergen immunotherapy administration should be made by the allergist on an individual patient basis and not based on corporate policy. If the immunotherapy is to be administered in the primary care physician's office, the patient and the primary care physician should be comfortable with this decision and recommended guidelines concerning waiting period, physician supervision, personnel qualifications and proper resuscitative equipment should be followed.

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For more medical information, please contact an [allergist in your area](#).

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## **Take Control of Asthma**

New Guidelines from the NHLBI's National Asthma Education and Prevention Program use the latest research to help you take control of your asthma symptoms and reduce the effects of the disease on your life. Your goal should be to feel good, be active all day and sleep well at night. All patients with asthma should accept nothing less.

If your asthma is in control, you should expect:

- No or few asthma symptoms, even at night or after exercise
- Prevention of all or most asthma attacks
- Participation in all activities, including exercise
- No emergency room visits or hospital stays
- Less need for quick-relief medicines
- No or few side effects from medicines

## **Keep Asthma Symptoms in Check**

Many of the 22 million Americans who have asthma limit their activities and miss work or school. The disease also can kill. Almost 4,000 people die from asthma each year and most of these deaths are preventable. Uncontrolled asthma and asthma deaths happen when the disease is not treated correctly or sometimes because people do not know they have asthma.

Effective asthma treatment begins with the right diagnosis early in the disease. Delays can lead to permanent lung damage.

Your doctor first decides how to treat your asthma by looking at what your symptoms are now and what they have been in the past. The doctor also will try to determine your risk for future attacks. This information will help you and your doctors develop a plan to manage your disease and keep your asthma under control.

If you just started treatment or have frequent symptoms, your doctor may want to see you every two to six weeks. Once treatment is under way, doctor visits may be every one to six months to check asthma control, even when you have no symptoms.

During your visits, the doctor will review your symptoms, activities and medicines. Between visits, it is important for you to monitor your asthma by keeping an asthma diary to track your symptoms or using a peak flow meter to measure the air flow from your lungs. With either method, you should keep track of your medication use. This information will help you and your doctor decide if any changes in your treatment plan are needed.

## **Partner with Your Doctor**

Your doctor is your partner in learning about and managing your asthma. Together, you and your doctor should:

- Talk about your treatment goals and how you can reach them
- Develop a written asthma action plan that explains the treatment you need every day and what to do if your symptoms becomes worse
- Review your asthma medicines so that you understand the purpose of each
- Practice how to take your medicine
- Discuss how to keep track of your symptoms and make decisions about how much medicine to take
- Review the things that make your asthma worse – your “asthma triggers” – and discuss tips on how to avoid them

The more you learn about your asthma and your medicines that treat it, the more you can keep your disease in control.

## **Avoid Asthma Triggers**

Often the best way to control asthma symptoms is to stay away from whatever causes or “triggers” them.

Asthma triggers frequently include:

- Things to which you are allergic (allergens) such as pollen, dust mites, cockroaches, molds and animal dander
- Tobacco smoke, air pollution, formaldehyde and other volatile organic substances
- Medicines such as aspirin and acetaminophen
- Cold air
- Exercise

Some health problems also can trigger or make asthma symptoms worse. These include obesity, obstructive sleep apnea, acid reflux, the common cold, sinus infections, stress and depression. Let your doctor know if you have one of these conditions so you can discuss the best approach to control both your health problem and your asthma symptoms.

## **Use Proper Medication**

Today, there are many effective medicines to treat asthma. Most people with asthma need two kinds.

- Quick-relief medicines – taken at the first sign of any asthma symptoms for immediate relief:  
Short-acting inhaled beta2-agonists  
Anticholinergics

Your doctor also may recommend you use these medicines before exercise. Quick-relief medicines can stop asthma symptoms, but they do not control airway inflammation that causes the symptoms. If you find that you need your quick-relief medicine to treat asthma symptoms more than twice a week, or two or more nights a month, then your asthma is not well controlled. Be sure to tell your doctor.

- Long-term control medicines – taken every day to prevent symptoms and attacks:  
Antileukotrienes or leukotriene modifiers  
Cromolyn sodium and nedocromil  
Inhaled corticosteroids  
Long-acting inhaled beta2-agonists (never taken alone)  
Methylxanthines  
Oral corticosteroids  
Immunomodulators

These medicines are taken every day even if you do not have symptoms. The most effective long-term control medicines reduce airway inflammation and help improve asthma control.

Your doctor will work with you to find the right medicine, or combination of medicines, to manage your asthma, and will adjust the type and amount based on your symptoms and control. The goal is to have you feel your best with the least amount of medicine.

## **Consider Allergy Shots**

If you cannot avoid an allergic asthma trigger and you have symptoms three days a week and more than two nights a month, you should consider allergy shots. Also known as immunotherapy, the shots are especially helpful when symptoms occur year-round or are not easily controlled by medicine.

## **See an Allergist, an Asthma Specialist**

An allergist can help you learn more about your asthma and develop a treatment plan that works for you.

The Guidelines say that you should see an asthma specialist if you:

- Have asthma symptoms every day and often at night that cause you to limit your activity
- Have had a life-threatening asthma attack
- Do not meet the goals of your asthma treatment after three to six months, or your doctor believes you are not responding to current treatment
- Have symptoms that are unusual or hard to diagnose
- Have conditions such as severe hay fever or sinusitis that complicate your asthma or your diagnosis
- Need more tests to find out more about your asthma and the causes of your symptoms
- Need more help and instruction on your treatment plan, medicines or asthma triggers
- Might be helped by allergy shots
- Need oral corticosteroid therapy or high-dose inhaled corticosteroids
- Have taken oral corticosteroids more than twice in one year
- Have stayed in a hospital because of your asthma
- Need help to identify your asthma triggers

An asthma specialist is recommended for children ages 0-4 who have asthma symptoms every day and three to four nights or more a month, and should be considered for children who have symptoms three days or more a week and one to two nights a month.

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