

ASTHMA

What is asthma?

Asthma is a common condition affecting more than 30 million people in this country characterized by inflammation of the breathing tubes or airways, and then narrowing of the bronchial airway lumen by tightening of the muscle lining. The lining swells due to the inflammation and mucus is produced.

It can be manifested only by cough, chest tightness or wheeze, or all three at the same time.

More than half have an allergic component to their asthma, even if their trigger is a nonallergic one (exercise, viral infections, cold air.) Symptoms include:

- Chest tightness
- Shortness of breath
- Dry cough
- Wheezing
- Sensation of not getting enough air
- Breathing faster than normal
- Mucus production
- Decreased exercise intolerance

Other terms used for asthma include bronchial asthma, wheezing bronchitis, asthmatic bronchitis, and reactive airway disease. Generally one has to have several episodes of these asthma symptoms before asthma is confirmed, although there is no required number or age for the diagnosis.

Why would you get asthma, you've never had it before?

Asthma can develop at any time from infancy to later adulthood, thought to be in part inherited. One member of a family may have asthma, while their son/daughter may develop eczema, seasonal allergies or food allergies.

Is asthma an allergy?

Asthma is inflammation of the airway, often it is from allergic triggers with secondary bronchospasm. Asthma is like 'allergies' of the bronchial tubes. Allergic patients can have chronic inflammation and then symptoms triggered by both nonallergic factors such as exercise or viral 'colds', or allergic ones, such as cats, dust, mold or pollen.

Many people have "mixed" asthma with allergic origin (cat, dust) but non-allergic trigger (exercise, 'colds'). Ridding the allergic component can often ameliorate most irritant symptoms in these people too.

Monitoring your asthma

Symptom frequency is the best way to monitor your asthma control. Symptoms should be infrequent. A peak flow meter is sometimes recommended because it can be used as early warning signal of worsening asthma. Each patient has a "best" peak flow rate based on their height and gender. Green zone readings are within normal range. The yellow and red zones represent a peak flow of less than 80% and less than 50% of predicted peak flow, respectively.

Triggers of asthma:

1. Allergens can cause acute asthma attacks. Cats are a major asthma allergen. Pollens can cause seasonal asthma in spring and fall. Chronic inflammation can occur with daily exposure (dust mite, animals living in the house, etc.). Dust allergy (to dust mite in mattresses, pillows, carpets) can result in chronic asthma symptoms. Not all asthma is "allergic." Skin tests can help determine if your asthma has an allergic component.

2. Upper respiratory infections seem to “settle” into the chest in asthma patients. Often the viral infection resolves, but it has initiated the inflammation of asthma. This can mimic “bronchitis” but does not respond to antibiotics. Asthma patients are more prone to complications of influenza and should have yearly flu vaccines.
3. Exercise-induced asthma refers to the transient increase in airway resistance that can be triggered by exercise. Some patients have symptoms that occur immediately after the onset of exercise while for others it takes several hours. The goal of therapy is to have all patients exercise to their ability without reservation. No one should be limited by exercise-induced asthma.

Many athletes notice a 3-4 hour refractory period (significant reduction in exercise asthma symptoms) when they begin their warm-up with a brief, moderately intense initial run. (Example: 80% max effort for 200-300 yards/meters). This technique is worth a try.

The NCAA and the United States Olympic Committee have different inhalers which they allow during competition. Check websites for updated medicine-use details. The United States Olympic Committee also banned any medication that has a decongestant “D” including many over-the-counter preparations with pseudoephedrine.

4. Irritants such as smoke, chemicals, perfume, paint fumes, etc. bother asthmatics at levels markedly lower than those at which non-asthmatics would begin to develop symptoms. Air pollution can be especially difficult for an asthmatic. Control of baseline inflammation can often diminish this irritant sensitivity.
5. Aspirin and other arthritis/pain type medications called NSAIDs can cause unexpected and severe asthma attacks in some asthmatics, some of whom have nasal polyps as well. Acetaminophen (Tylenol) can usually be taken by such patients. Many over-the-counter medications contain aspirin-like products.
6. Sinusitis and asthma are related in a way not yet completely understood. Chronic sinus inflammation and infection can worsen asthma but otherwise be silent. Eradicating silent sinusitis can result in significant diminution of asthma symptoms. Many patients do not know that their chronic asthma symptoms can be a direct result of undiagnosed sinusitis.
7. Rarely, GERD, (gastro-esophageal reflux, laryngopharyngeal reflux, LPR) can result in coughing or airway muscle spasm similar to asthma. Heartburn might be an associated symptom, but often is not present and patients are not aware.
8. Emotions. Emotional stress can mimic asthma-like symptoms in some patients who have asthma or can result in chest tightness and can mimic an “asthma” attack. Stress alone, however, will not bring on airway inflammation.
9. Occupational asthma is well described and can affect many kinds of workers who have become sensitized. Over 200 occupations are known to place workers at risk for asthma symptoms.

How is asthma diagnosed?

Asthma is a clinical diagnosis. A detailed medical history including symptoms, patterns, severity, triggers, home situation, medical and family history is necessary. Spirometric lung function testing can show obstruction of airflow, which is a hallmark of asthma, and can also show response to medications. A chest x-ray is usually normal in adult asthmatics. Allergy skin testing is done to rule in or out allergic or extrinsic triggers of asthma. Response to asthma medications is often most helpful diagnostically.

Remodeling (Scarring of Airways)

We now know that years of under-treated asthma can result in thickening of the airways of the lungs resulting in a more severe, difficult to manage emphysema-like picture. Asthma needs to be well controlled early to prevent the development of fibrous tissue in the breathing tubes.

Asthma Treatment

Treatment generally consists of several approaches:

1. Evaluating the triggers and directing treatment toward the control or removal of those triggers. In some cases, this warrants making changes in the environment, especially if allergens are present in your home or at work.
2. Lessening inflammation and hyper-reactivity of the airway through medication and other means.
3. Treating chronic sinusitis if it exists and eliminating acid reflux.
4. Flu vaccine every fall.
5. Allergy shots, immunotherapy can markedly decrease symptoms and need for long term medicines.

Allergen Avoidance

Knowing if and to what you are allergic can help you take appropriate measures in your home to lessen the exposure. If your symptoms are chronically triggered by animal dander or feathers, the best treatment is obvious – removal of the source. Neither medications nor allergy injections are any substitute for the removal of allergens when this is reasonably possible. Some allergens, such as house dust mites or molds, are difficult to remove entirely.

Cover your mattress, pillow and box spring in plastic encasings, and wash your pillows, sheets and blankets weekly in hot water. Mold can grow in damp areas of your home such as the kitchen and bathroom. If you are allergic to mold, take measures to lessen mold growth. These include: fix water leaks, ventilating these areas well, cleaning frequently, using a weak chlorine bleach solution as needed. Consider a dehumidifier if your basement is damp or you live in a very humid climate.

Air conditioning may reduce the number of airborne allergens by making it easier to keep windows closed in hot weather. Central air conditioning also has the benefit of lowering the humidity in the home. Air filtration systems, if carefully selected and properly maintained, can aid some people by lessening exposure to their allergens. Purchase such equipment only if your doctor advises that the benefits will be worth the expense.

Asthma Therapy

Anti-inflammatory Medications

1. Corticosteroids (“steroids”) These are effective anti-inflammatory drugs for the treatment of asthma. They help reduce and prevent inflammation in the airways and decrease airway hyper-reactivity. They are available as inhaled and tablet preparations.

Inhaled steroids – An inhaled steroid is often recommended as a “first-line” drug in the treatment of asthma. This is a preventive medication and must be used regularly to be effective. Studies have shown that at recommended dosages the medicine is metabolized at the lung tissue and little enters the bloodstream. Possible local side effects include: hoarseness, cough and thrush. Using a spacer with the steroid inhaler reduces the risk of these side effects. We also recommend that you rinse your mouth after taking an inhaled steroid. Steroid inhalers include: Arnuity Ellipta, Alvesco, Aerospans, Pulmicort, Flovent, QVAR, and Asmanex. Advair, Symbicort, Dulera, and Breo Ellipta are inhaled steroids in “combination” with Long Acting Beta Agonists (LABA).

Oral steroids – Steroid tablets can be very beneficial in treating severe episodes of asthma. They reduce airway inflammation and mucus production and allow bronchodilators to work better. Oral steroids can be used occasionally in short-term bursts or for severe asthmatics as part of their treatment. You may experience a few mild side effects such as increased appetite, fluid retention, moodiness and stomach upset. These are temporary and typically disappear after the medicine is stopped.

The use of long-term oral steroids can be associated with significant side effects to include: weight gain, fluid retention, osteoporosis, high blood pressure, cataracts, bruising easily, muscle weakness and weakened immune system. This is why prednisone is used for brief periods only. These side effects are generally not a worry with the use of inhaled steroids.

2. Accolate, Zylflo, Singulair This is a class of preventive oral anti-inflammatory medications that are not steroids, but act by decreasing inflammation. They seem to be effective in a subset of asthma patients.

3. Cromolyn/Intal Cromolyn (Intal) is a good preventive treatment but is available as inhaler only outside the US. It helps to lessen symptoms triggered by exercise, cold air and allergies. When used routinely, they can help prevent inflammation. Intal is no longer available in the United States, although some asthma patients acquire Intal from non-US sources (Canada). It is important to understand that these medicines do not work quickly like a “rescue” bronchodilator such as albuterol. Intal has a very low incidence of side effects.

4. Bronchodilators Bronchodilators open the airways by relaxing the smooth muscle and lessening the sensitivity of the airways. They also may help to loosen mucus, but do not have much effect on inflammation. They are “rescue” medicines and should not be needed routinely. Over-reliance on these medicines is an indication of asthma “out of control.”

5. Xolair, Fasenna, Nucala Dupixent, and others monoclonal antibodies injected regularly which substantially reduce allergic inflammation and can decrease markedly the chronic need for ongoing ‘controller’ medications in asthma.

6. Immunotherapy (Allergy Injections) Many asthmatics have positive skin tests for allergies. A detailed medical history correlated with skin test results can determine if your allergies are asthma triggers. Even though viral ‘colds’ or exercise may make you cough or wheeze, the ultimate cause may be your two cats.

Immunotherapy consists of a series of injections with solutions containing your allergens. The object is to reduce your sensitivity thereby lessening your symptoms. Treatment usually begins with injections of a weak solution given once or twice a week with the strength gradually increasing. When the strongest dosage is reached, the injections are usually given about once or twice a month. Immunotherapy is the only form of treatment which can change the immune system and potentially cure the allergy.

Allergy injections do not produce immediate results. A period of six months may be required before you experience improvement; however, the benefit is often long lasting. A normal course of treatment for the injections is three to five years, although some asthmatics may benefit from a longer course.

How should asthma affect my life?

The goal of asthma therapy is freedom from symptoms in activities of daily life. Many Olympic medals have been won by controlled asthmatics and many professional athletes have asthma. With the proper treatment plan you should be able to have a totally normal lifestyle. You should:

- Be able to attend work or school everyday.
- Be able to exercise without a problem.
- Be able to sleep well through the night.
- Not need emergency visits to the doctor nor regular oral steroids.
- Not need hospitalization for asthma.
- Not need rescue inhalers regularly.
- Not be afraid of asthma.