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# Asthma

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## Treatments and drugs

By Mayo Clinic staff

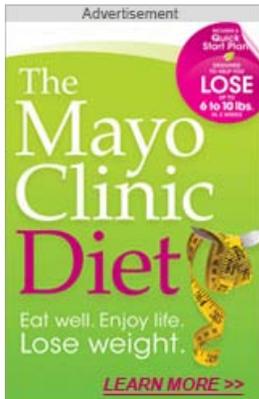
Prevention and long-term control are key in stopping asthma attacks before they start. Treatment usually involves learning to recognize your triggers and taking steps to avoid them, and tracking your breathing to make sure your daily asthma medications are keeping symptoms under control. In case of an asthma flare-up, you may need to use a quick-relief inhaler, such as albuterol.

### Medications

The right medications for you depend on a number of things, including your age, your symptoms, your asthma triggers and what seems to work best to keep your asthma under control. Preventive, long-term control medications reduce the inflammation in your airways that leads to symptoms. Quick-relief inhalers (bronchodilators) quickly open swollen airways that are limiting breathing. In some cases, allergy medications are necessary.

Long-term asthma control medications, generally taken daily, are the cornerstone of asthma treatment. These medications keep asthma under control on a day-to-day basis and make it less likely you'll have an asthma attack. Types of long-term control medications include:

- Inhaled corticosteroids. These medications include fluticasone (Flovent Diskus, Flonase), budesonide (Pulmicort, Rhinocort), mometasone (Nasonex, Asmanex Twisthaler), ciclesonide (Alvesco, Omnaris), flunisolide (Aerobid, Aerospan HFA), beclomethasone (Qvar, Qnasl) and others. You may need to use these medications for several days to weeks before they reach their maximum benefit. Unlike oral corticosteroids, these corticosteroid medications have a relatively low risk of side effects and are generally safe for long-term use.
- Leukotriene modifiers. These oral medications — including montelukast (Singulair), zafirlukast (Accolate) and zileuton (Zyflo) — help relieve asthma symptoms for up to 24 hours. In rare cases, these medications have been linked to psychological reactions, such as agitation, aggression, hallucinations, depression and suicidal thinking. Seek medical advice right away for any unusual reaction.
- Long-acting beta agonists. These inhaled medications, which include salmeterol (Serevent) and formoterol (Foradil, Perforomist), open the airways. Some research shows that they may increase the



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risk of a severe asthma attack, so take them only in combination with an inhaled corticosteroid. And because these drugs can mask asthma deterioration, don't use them for an acute asthma attack.

- **Combination inhalers.** These medications — such as fluticasone-salmeterol (Advair Diskus), budesonide-formoterol (Symbicort) and mometasone-formoterol (Dulera) — contain a long-acting beta agonist along with a corticosteroid. Because these combination inhalers contain long-acting beta agonists, they may increase your risk of having a severe asthma attack.
- **Theophylline.** Theophylline (Theo-24, Elixophyllin, others) is a daily pill that helps keep the airways open (bronchodilator) by relaxing the muscles around the airways. It's not used as often now as in past years.

Quick-relief (rescue) medications are used as needed for rapid, short-term symptom relief during an asthma attack — or before exercise if your doctor recommends it. Types of quick-relief medications include:

- **Short-acting beta agonists.** These inhaled, quick-relief bronchodilators act within minutes to rapidly ease symptoms during an asthma attack. They include albuterol (ProAir HFA, Ventolin HFA, others), levalbuterol (Xopenex HFA) and pirbuterol (Maxair). Short-acting beta agonists can be taken using a portable, hand-held inhaler or a nebulizer — a machine that converts asthma medications to a fine mist, so they can be inhaled through a face mask or a mouthpiece.
- **Ipratropium (Atrovent).** Like other bronchodilators, ipratropium acts quickly to immediately relax your airways, making it easier to breathe. Ipratropium is mostly used for emphysema and chronic bronchitis, but it's sometimes used to treat asthma attacks.
- **Oral and intravenous corticosteroids.** These medications — which include prednisone and methylprednisolone — relieve airway inflammation caused by severe asthma. They can cause serious side effects when used long term, so they're used only on a short-term basis to treat severe asthma symptoms.

If you have an asthma flare-up, a quick-relief inhaler can ease your symptoms right away. But if your long-term control medications are working properly, you shouldn't need to use your quick-relief inhaler very often. Keep a record of how many puffs you use each week. If you need to use your quick-relief inhaler more often than your doctor recommends, see your doctor. You probably need to adjust your long-term control medication.

Allergy medications may help if your asthma is triggered or worsened by allergies. These include:

- **Allergy shots (immunotherapy).** Over time, allergy shots gradually reduce your immune system reaction to specific allergens. You generally receive shots once a week for a few months, then once a month for a period of three to five years.
- **Omalizumab (Xolair).** This medication, given as an injection every two to four weeks, is specifically for people who have allergies and severe asthma. It acts by altering the immune system.
- **Allergy medications.** These include oral and nasal spray antihistamines and decongestants as well as corticosteroid and cromolyn nasal sprays.

**Bronchial thermoplasty**

This treatment — which isn't widely available nor right for everyone — is used for severe asthma that doesn't improve with inhaled corticosteroids or

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other long-term asthma medications. Generally, over the span of three outpatient visits, bronchial thermoplasty heats the insides of the airways in the lungs with an electrode, reducing the smooth muscle inside the airways. This limits the ability of the airways to tighten, making breathing easier and possibly reducing asthma attacks.

**Treat by severity for better control: A stepwise approach**  
Your treatment should be flexible and based on changes in your symptoms, which should be assessed thoroughly each time you see your doctor. Then, your doctor can adjust your treatment accordingly. For example, if your asthma is well controlled, your doctor may prescribe less medicine. If your asthma isn't well controlled or is getting worse, your doctor may increase your medication and recommend more-frequent visits.

#### Asthma action plan

Work with your doctor to create an asthma action plan that outlines in writing when to take certain medications, or when to increase or decrease the dose of your medications based on your symptoms. Also include a list of your triggers and the steps you need to take to avoid them.

Your doctor may also recommend tracking your asthma symptoms or using a peak flow meter on a regular basis to monitor how well your treatment is controlling your asthma.

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