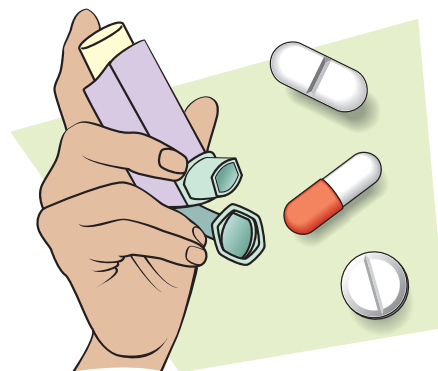


Medicines Used to Treat COPD

COPD MINI-SERIES #3

The most common medications for treating chronic obstructive pulmonary disease (COPD) are bronchodilators and steroids. Both make breathing easier, but do this in different ways.



BRONCHODILATORS

Bronchodilators are medications that relax the muscles that wrap around your breathing tubes, allowing the tubes to become larger and easier to breathe through. Each bronchodilator is different, based on 1. the chemical make up, 2. how fast it works and 3. how long it lasts. Your health care provider will work with you to decide which of these medications or combinations work best for you.

Types of bronchodilators:

- beta₂-agonists
- anticholinergics
- theophyllines

Beta₂-Agonists

Inhaled beta₂-agonists can be fast-acting (start to work within 3 to 5 minutes), or slow-acting (take 20 minutes to work). These medications can also be short- or long-lasting. Short-lasting beta₂-agonists (albuterol, pirbuterol, salbutamol, terbutaline) last for 4-6 hours, while long-lasting (salmeterol, formoterol) can last for up to 12 hours. Indacaterol and vilanterol last up to 24 hours. Albuterol and terbutaline are available in both inhaled and pill forms. The pill form can cause more side effects than the inhaled form.

Beta₂-agonists that are fast-acting are also known as reliever medicines because they bring quick relief for breathlessness, but do not last long enough to provide 24-hour relief. Using your reliever medication before an activity that you know makes your breathing worse (exercise, showering, or going out into the cold air) may help lessen or prevent your breathing difficulty.

Long-lasting beta₂-agonists are taken every 12 to 24 hours, providing more convenient treatment of COPD than short acting drugs.

Common side effects when taking beta₂-agonists

Beta₂-agonists can cause fast heartbeat (and other heart problems), shakiness, and cramping of the hands, legs, and feet. Often this combination of fast heartbeat and shakiness can cause anxiety and worsen breathlessness. This can happen when the medicine is overused. These side effects can last for a few minutes after taking the medicine, and may totally go away after a few days of regular use. If the side effects do not go away, talk to your health care provider, who may stop or reduce the dose, or change to another type or brand of beta₂-agonist.

Anticholinergics

Anticholinergic bronchodilators are inhaled medicines. They can be short- or long-lasting. The short-lasting form (ipratropium) works in about 15 minutes and lasts for 6-8 hours, and is usually taken 4 times a day. The long-lasting forms take about 20 minutes to begin working and last 24 hours (tiotropium, umeclidinium) or 12 hours (aclidinium). Because of the slower onset of action of anticholinergics, they are not to be used for quick relief (reliever medicine).

Common side effects when taking anticholinergics

Anticholinergic bronchodilators do not have as many side effects as beta₂-agonists. The most common side effects are dry mouth and difficulty passing urine (urinary retention).

Why am I taking two bronchodilators if they both do the same thing?

Understanding why you are taking two different bronchodilators may be confusing. You may be given a beta₂-agonist with an anticholinergic because the two work better than just one alone. Another common combination is to take a fast-acting bronchodilator with a long-lasting bronchodilator. This combination gives fast action and long-lasting relief.

Theophylline

Theophylline is no longer commonly used for COPD in the U.S. Theophylline is usually taken by pill. Inhaled forms of theophylline are not available.

When taking theophylline, a blood test must be done to check your theophylline level. The amount of theophylline you take needs careful supervision since your theophylline blood level can change just by starting a new medicine or stopping smoking. Common side effects are shakiness, but very serious side effects that may occur are severe nausea, vomiting, heart irregularities, and seizures. If you experience any of these, get medical care immediately.

STEROIDS

Steroids, also known as corticosteroids, are medications used to reduce swelling in the breathing tubes. These drugs are not the same as anabolic steroids (misused by athletes) to build muscles.

Steroids are usually taken by inhaler or pill. The inhaled steroid may be combined with a bronchodilator. Inhaled steroids can be given in small doses, resulting in fewer side

PHYSICIANS:
CLIP
AND
COPY

ATS PATIENT INFORMATION SERIES

effects. They do not work quickly, however, and may take a week or more before you notice the benefits. Pills can act faster (within 24 hours) than inhaled steroids, but can cause more side effects.

Common side effects when taking steroid medications

Side effects depend on the dose, length of use, and whether taken by pill or inhaled. The most common side effects of inhaled steroids are a sore mouth, hoarse voice, and infections in the throat and mouth. You can avoid or reduce these side effects by rinsing your mouth after taking an inhaled steroid. If using a spray inhaler, also use a spacer/chamber to reduce the amount of steroid landing in your mouth and throat.

Taking steroids by pill in high doses, or taking low doses for a long time, may cause problems including bruising of the skin, weight gain, weakening of the skin and bones (osteoporosis), cataracts, increased blood sugar, mood changes, muscle weakness, and swelling of the ankles or feet. Patients who use inhaled steroids may have a higher risk of pneumonia. While many of these unwanted effects can be troublesome, not taking steroids when they are needed can lead to severe, life-threatening breathing problems. You should discuss any concerns about taking steroids with your health care provider.

OTHER MEDICATIONS

Antibiotics for bacterial infection, mucolytics to thin mucus (phlegm or sputum), and oxygen to treat low oxygen levels (www.thoracic.org/patiented/adobe/oxytherapy.pdf), are also used to treat COPD. Other medications that have not been mentioned have not as yet been proven to be effective in the treatment of COPD. For people with frequent exacerbations despite being on bronchodilators and steroids, two medications are sometimes used. Roflumilast is a new medication that may decrease the number of exacerbations you have. Long-term use of the antibiotic azithromycin, may also decrease the number of exacerbations you have. Both can have side effects so it is important to discuss the risks and benefits with your health care provider.

What is the Difference Between Generic and Brand Name Medicines?

Most medicines have two names, a generic and a brand name. The generic name describes the main chemical in the drug. The brand name is decided by the maker (or makers) of the medicine. Therefore, if several manufacturers are making the same generic drug, then the drug may be known by several brand names. Brand names and generic names can be different from country to country. Usually there is no major difference between brands of the same medicine.

Delivery Devices for Inhaled Medicines

Bronchodilators and steroids are usually taken by inhaling the medicine. These inhaled medicines have recently been developed in a dry powder form as well as liquid spray. This has resulted in new designs for inhalers. These inhalers can be hard to use correctly. If not taken properly, you may not be receiving the full dose of the medicine. Bring your inhalers

and spacer/chamber to your clinic visit and review your medicines and the way you use them with your health care provider.

Examples of bronchodilator actions and common side effects:

	Beta ₂ -agonist	Anticholinergic	Theophylline
Short-lasting (4-6 hours)	albuterol, pirbuterol, salbutamol, terbutaline	ipatropium	✓
Long-lasting (12-24 hours)	Indacaterol, formoterol, salmeterol, vilanterol	acridinium, tiotropium, umeclidinum	✓
Fast-acting (5 minutes)	albuterol, formoterol, salbutamol, terbutaline		
Slow-acting (20 minutes or more)	salmeterol	ipatropium, tiotropium	✓
Side Effects:			
Shakiness	✓		✓
Dry mouth		✓	
Fast heart rate	✓		✓
Nausea/ Stomach upset			✓
Muscle Cramps	✓		✓

Authors: Paula Meek PhD, RN, Suzanne Lareau RN, MS, Bonnie Fahy RN, MN, and Elise Austegard RN, MS

Reviewers: Chris Garvey RN, FNP, Kevin Wilson MD, Chris Slatore MD

Additional Lung Health Information

American Thoracic Society

<http://patients.thoracic.org/information-series/en/resources/chronic-obstructive-pulmonary-disease-copd.pdf>

Canadian Lung Association

<http://www.sk.lung.ca/drugs/pages/copd.html>

Rx Key Points

- ✓ Know the names of your medicines and what they are supposed to do and not do.
- ✓ Review how you take your medicines with your health care provider.
- ✓ Tell your health care provider everything you are taking (medicines for other conditions, over-the-counter medicines, herbs, medicines from relatives, etc).
- ✓ Overuse of medicine can result in side effects.
- ✓ Call your health care provider promptly if you have any serious side effects.

**Health Care Provider's Contact Numbers/
E-mail Address:**
