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COPD

What is COPD (chronic obstructive pulmonary disease)?

COPD (chronic obstructive pulmonary disease) is a group of lung diseases that make it hard to breathe and get worse over time.

Normally, the airways and air sacs in your lungs are elastic or stretchy. When you breathe in, the airways bring air to the air sacs. The air sacs fill up with air, like a small balloon. When you breathe out, the air sacs deflate, and the air goes out. If you have COPD, less air flows in and out of your airways because of one or more problems:

- The airways and air sacs in your lungs become less elastic
- The walls between many of the air sacs are destroyed
- The walls of the airways become thick and inflamed
- The airways make more mucus than usual and can become clogged

What are the types of COPD (chronic obstructive pulmonary disease)?

COPD includes two main types:

- Emphysema [<https://medlineplus.gov/emphysema.html>] affects the air sacs in your lungs, as well as the walls between them. They become damaged and are less elastic.
- Chronic bronchitis [<https://medlineplus.gov/chronicbronchitis.html>] , in which the lining of your airways is constantly irritated and inflamed. This causes the lining to swell and make mucus.

Most people with COPD have both emphysema and chronic bronchitis, but how severe each type is can be different from person to person.

What causes COPD (chronic obstructive pulmonary disease)?

The cause of COPD is usually long-term exposure to irritants that damage your lungs and airways. In the United States, cigarette smoke [<https://medlineplus.gov/smoking.html>] is the main cause. Pipe, cigar, and other types of tobacco smoke can also cause COPD, especially if you inhale them.

Exposure to other inhaled irritants can contribute to COPD. These include secondhand smoke [<https://medlineplus.gov/secondhandsmoke.html>] , air pollution [<https://medlineplus.gov/airpollution.html>] , and chemical fumes or dusts from the environment or workplace.

Rarely, a genetic condition called alpha-1 antitrypsin deficiency [<https://medlineplus.gov/alpha1antitrypsindeficiency.html>] can play a role in causing COPD.

Who is at risk for COPD (chronic obstructive pulmonary disease)?

The risk factors for COPD include:

- **Smoking.** This is the main risk factor. Up to 75% of people who have COPD smoke or used to smoke.

- **Long-term exposure to other lung irritants**, such as secondhand smoke, air pollution, and chemical fumes and dusts from the environment or workplace
- **Age**. Most people who have COPD are at least 40 years old when their symptoms begin.
- **Genetics**. This includes alpha-1 antitrypsin deficiency, which is a genetic condition. Also, smokers who get COPD are more likely to get it if they have a family history of COPD.
- **Asthma**. People who have asthma [<https://medlineplus.gov/asthma.html>] have more risk of developing COPD than people who don't have asthma. But most people with asthma will **not** get COPD.

What are the symptoms of COPD (chronic obstructive pulmonary disease)?

At first, you may have no symptoms or only mild symptoms. As the disease gets worse, your symptoms usually become more severe. They can include:

- Frequent coughing [<https://medlineplus.gov/cough.html>] or a cough that produces a lot of mucus
- Wheezing
- A whistling or squeaky sound when you breathe
- Shortness of breath, especially with physical activity
- Tightness in your chest

Some people with COPD get frequent respiratory infections such as colds [<https://medlineplus.gov/commoncold.html>] and the flu [<https://medlineplus.gov/flu.html>]. In severe cases, COPD can cause weight loss, weakness in your lower muscles, and swelling [<https://medlineplus.gov/edema.html>] in your ankles, feet, or legs.

How is COPD (chronic obstructive pulmonary disease) diagnosed?

Your health care provider may use many tools to make a diagnosis:

- A medical history, which includes asking about your symptoms
- A family history
- Various tests, such as lung function tests [<https://medlineplus.gov/lab-tests/lung-function-tests/>], a chest x-ray [<https://medlineplus.gov/xrays.html>] or CT scan [<https://medlineplus.gov/ctscans.html>], and blood tests

Your doctor will diagnose COPD based on your signs and symptoms, your medical and family histories, and test results.

What are the treatments for COPD (chronic obstructive pulmonary disease)?

There is no cure for COPD. However, treatments can help with symptoms, slow the progress of the disease, and improve your ability to stay active. There are also treatments to prevent or treat complications of the disease. Treatments include:

- **Lifestyle changes**, such as
 - Quitting smoking [<https://medlineplus.gov/quittingsmoking.html>] if you are a smoker. This is the most important step you can take to treat COPD.
 - Avoiding secondhand smoke and places where you might breathe in other lung irritants
 - Ask your health care provider for an eating plan that will meet your nutritional needs. Also ask about how much physical activity you can do. Physical activity can strengthen the muscles that help you breathe and improve your overall wellness.
- **Medicines**, such as
 - Bronchodilators, which relax the muscles around your airways. This helps open your airways and makes breathing easier. Most bronchodilators are taken through an inhaler. In more severe cases, the inhaler may also contain steroids [<https://medlineplus.gov/steroids.html>] to reduce inflammation.
 - Vaccines for the flu [<https://medlineplus.gov/flushot.html>] and pneumococcal pneumonia, since people with COPD are at higher risk for serious problems from these diseases
 - Antibiotics [<https://medlineplus.gov/antibiotics.html>] if you get a bacterial lung infection
- Oxygen therapy [<https://medlineplus.gov/oxygentherapy.html>], if you have severe COPD and low levels of oxygen in your blood. Oxygen therapy can help you breathe better. You may need extra oxygen all the time or only at certain times.

- Pulmonary rehabilitation [<https://medlineplus.gov/pulmonaryrehabilitation.html>] , which is a program that helps improve the well-being of people who have chronic breathing problems. It may include
 - An exercise program
 - Disease management training
 - Nutritional counseling
 - Psychological counseling
- **Surgery**, usually as a last resort for people who have severe symptoms that have not gotten better with medicines:
 - For COPD that is mainly related to emphysema, there are surgeries that:
 - Remove damaged lung tissue
 - Remove large air spaces (bullae) that can form when air sacs are destroyed. The bullae can interfere with breathing.
 - For severe COPD, some people may need lung transplant [<https://medlineplus.gov/lungtransplantation.html>]

If you have COPD, it's important to know when and where to get help for your symptoms. You should get emergency care if you have severe symptoms, such as trouble catching your breath or talking. Call your health care provider if your symptoms are getting worse or if you have signs of an infection, such as a fever [<https://medlineplus.gov/fever.html>].

Can COPD (chronic obstructive pulmonary disease) be prevented?

Since smoking causes most cases of COPD, the best way to prevent it is to not smoke. It's also important to try to avoid lung irritants such as secondhand smoke, air pollution, chemical fumes, and dusts.

NH: National Heart, Lung, and Blood Institute

Start Here

- Chronic Obstructive Pulmonary Disease (COPD) [<https://www.cdc.gov/copd/>] (Centers for Disease Control and Prevention)
- Chronic Obstructive Pulmonary Disease (COPD) [<https://www.thoracic.org/patients/patient-resources/resources/copd-intro.pdf>] (American Thoracic Society) - **PDF**
- COPD: Are You at Risk? [<https://www.nhlbi.nih.gov/sites/default/files/publications/AreYouAtRisk-August-2019-508.pdf>]  (National Heart, Lung, and Blood Institute) - **PDF**
- Now That You Know It's COPD, Here's How to Breathe Better [https://www.nhlbi.nih.gov/sites/default/files/publications/Breathing%20Better%20with%20a%20COPD%20Diagnosis_2018_508c.pdf]  (National Heart, Lung, and Blood Institute) - **PDF**
- What Is COPD? [<https://www.nhlbi.nih.gov/health/copd>]  (National Heart, Lung, and Blood Institute)

Also in Spanish [<https://www.nhlbi.nih.gov/es/salud/epoc>]

Diagnosis and Tests

- Alpha-1 Antitrypsin Testing [<https://medlineplus.gov/lab-tests/alpha-1-antitrypsin-testing/>]  (National Library of Medicine)

Also in Spanish [<https://medlineplus.gov/spanish/pruebas-de-laboratorio/pruebas-de-alfa-1-antitripsina/>]
- Arterial Blood Gas (ABG) Test [<https://medlineplus.gov/lab-tests/blood-oxygen-level/>]  (National Library of Medicine)

Also in Spanish [<https://medlineplus.gov/spanish/pruebas-de-laboratorio/prueba-de-gasometria-arterial/>]
- Breathlessness -- Shortness of Breath [<https://www.thoracic.org/patients/patient-resources/resources/breathlessness.pdf>] (American Thoracic Society) - **PDF**
- Bronchoscopy and Bronchoalveolar Lavage (BAL) [<https://medlineplus.gov/lab-tests/bronchoscopy-and-bronchoalveolar-lavage-bal/>]  (National Library of Medicine)

Also in Spanish [<https://medlineplus.gov/spanish/pruebas-de-laboratorio/broncoscopica-con-lavado-broncoalveolar/>]
- Lung Function Tests [<https://medlineplus.gov/lab-tests/lung-function-tests/>]  (National Library of Medicine)

Also in Spanish [<https://medlineplus.gov/spanish/pruebas-de-laboratorio/pruebas-de-funcion-pulmonar/>]
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- Spirometry [<https://www.lung.org/lung-health-diseases/lung-procedures-and-tests/spirometry>]  (American Lung Association)

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• Tests for Lung Disease [<https://www.nhlbi.nih.gov/health/lung-tests>]  (National Heart, Lung, and Blood Institute)

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Treatments and Therapies

- COPD Medications [<https://www.nationaljewish.org/conditions/medications/copd?modal=1>] (National Jewish Health)
- Managing Your COPD Medications [<https://www.lung.org/lung-health-diseases/lung-disease-lookup/copd/treating/copd-medications>]  (American Lung Association)
- Medicines for COPD [<https://www.thoracic.org/patients/patient-resources/resources/copd-medicines.pdf>] (American Thoracic Society) - 
- Surgery for COPD [<https://www.lung.org/lung-health-diseases/lung-disease-lookup/copd/treating/surgery>] (American Lung Association)

Living With

- Breathe Better With COPD: Living With Chronic Obstructive Pulmonary Disease [<https://newsinhealth.nih.gov/2020/11/breathe-better-copd>]  (National Institutes of Health)
Also in Spanish [<https://salud.nih.gov/recursos-de-salud/nih-noticias-de-salud/respira-mejor-con-epoc>]
- Nutrition and COPD [<https://www.lung.org/lung-health-diseases/lung-disease-lookup/copd/living-with-copd/nutrition>] (American Lung Association)
- Oxygen Therapy [<https://www.lung.org/lung-health-diseases/lung-procedures-and-tests/oxygen-therapy>] (American Lung Association)
- Pulmonary Rehabilitation: MedlinePlus Health Topic [<https://medlineplus.gov/pulmonaryrehabilitation.html>]  (National Library of Medicine)
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Related Issues

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- Five Steps for Successful Flying with Oxygen [<https://www.lung.org/blog/flying-with-oxygen>] (American Lung Association)
- Marvels of Mucus and Phlegm: The Slime That Keeps You Healthy [<https://newsinhealth.nih.gov/2020/08/marvels-mucus-phlegm>]  (National Institutes of Health)
Also in Spanish [<https://salud.nih.gov/recursos-de-salud/nih-noticias-de-salud/las-maravillas-de-la-mucosidad-y-la-flema>]
- Oxygen Therapy: Traveling with Oxygen [<https://www.lung.org/lung-health-diseases/lung-procedures-and-tests/oxygen-therapy/traveling-with-oxygen>]  (American Lung Association)
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Images

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Test Your Knowledge

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Statistics and Research

- FastStats: Chronic Obstructive Pulmonary Disease (COPD) Includes: Chronic Bronchitis and Emphysema [https://www.cdc.gov/nchs/faststats/copd.htm] (National Center for Health Statistics)
- Lung Development May Explain Why Some Non-Smokers Get COPD and Some Heavy Smokers Do Not [https://www.nih.gov/news-events/news-releases/lung-development-may-explain-why-some-non-smokers-get-copd-some-heavy-smokers-do-not]  (National Heart, Lung, and Blood Institute)

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- Article: Effect of Acupoint Application and Massage on the Comfort Degree and... [https://www.ncbi.nlm.nih.gov/pubmed/40717055]
- Article: Effect of Telemonitoring on Moderate and Severe Exacerbations in Patients with... [https://www.ncbi.nlm.nih.gov/pubmed/40666254]
- COPD -- see more articles [https://pubmed.ncbi.nlm.nih.gov/?term=%22Pulmonary+Disease%2C+Chronic+Obstructive%22%5Bmajr%3Anoexp%5D+AND+humans%5Bmh%5D+AND+english%5Bla%5D+AND+%22last+1+Year%22+%5Bdat%5D+AND+%28patient+education+handout%5Bpt%5D+OR+guide%5Bpt%5D+OR+clinical+trial%5Bpt%5D%29++NOT+%28letter%5Bpt%5D+OR+case+reports%5Bpt%5D+OR+editorial%5Bpt%5D+OR+comment%5Bpt%5D%29+AND+full+text%5Bsb%5D+]

Reference Desk

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Also in Spanish [https://www.nhlbi.nih.gov/es/salud/pulmones]

Find an Expert

- American Lung Association [https://www.lung.org/]
- National Heart, Lung, and Blood Institute [https://www.nhlbi.nih.gov/] 

Women

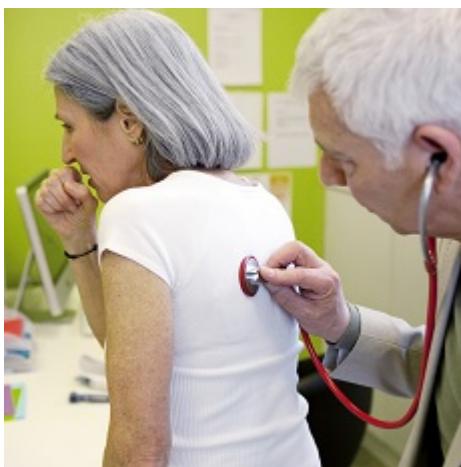
- Chronic Obstructive Pulmonary Disease COPD [<https://womenshealth.gov/a-z-topics/chronic-obstructive-pulmonary-disease>] (Department of Health and Human Services, Office on Women's Health)

Older Adults

- COPD: Unique to Older Adults [<https://www.healthinaging.org/a-z-topic/chronic-obstructive-pulmonary-disorder-copd>] (AGS Health in Aging Foundation)

Patient Handouts

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Also in Spanish [<https://medlineplus.gov/spanish/ency/patientinstructions/000697.htm>]
- How to breathe when you are short of breath [<https://medlineplus.gov/ency/patientinstructions/000053.htm>] (Medical Encyclopedia)
Also in Spanish [<https://medlineplus.gov/spanish/ency/patientinstructions/000053.htm>]
- Living Better with COPD [https://www.nhlbi.nih.gov/sites/default/files/publications/LivingBetterWith-COPD-2022_0.pdf]
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- Pulmonary function tests [<https://medlineplus.gov/ency/article/003853.htm>] (Medical Encyclopedia)
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- Pulmonary Rehabilitation: A Path to Breathing Better [<https://www.nhlbi.nih.gov/resources/pulmonary-rehabilitation-path-breathing-better-infographic>]
 **Easy-to-Read Infographic** (National Heart, Lung, and Blood Institute) - **PDF**
- Smoking and COPD [<https://medlineplus.gov/ency/patientinstructions/000696.htm>] (Medical Encyclopedia)
Also in Spanish [<https://medlineplus.gov/spanish/ency/patientinstructions/000696.htm>]
- Using oxygen at home [<https://medlineplus.gov/ency/patientinstructions/000048.htm>] (Medical Encyclopedia)
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MEDICAL ENCYCLOPEDIA

Blood gases [<https://medlineplus.gov/ency/article/003855.htm>]

Bronchoscopy [<https://medlineplus.gov/ency/article/003857.htm>]

Chronic obstructive pulmonary disease (COPD) [<https://medlineplus.gov/ency/article/000091.htm>]

Chronic obstructive pulmonary disease - adults - discharge
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COPD - control drugs [<https://medlineplus.gov/ency/patientinstructions/000025.htm>]

COPD - managing stress and your mood [<https://medlineplus.gov/ency/patientinstructions/000700.htm>]

COPD - quick-relief drugs [<https://medlineplus.gov/ency/patientinstructions/000026.htm>]

COPD - what to ask your doctor [<https://medlineplus.gov/ency/patientinstructions/000215.htm>]

COPD and other health problems [<https://medlineplus.gov/ency/patientinstructions/000701.htm>]

COPD flare-ups [<https://medlineplus.gov/ency/patientinstructions/000698.htm>]

Day to day with COPD [<https://medlineplus.gov/ency/patientinstructions/000697.htm>]

How to breathe when you are short of breath [<https://medlineplus.gov/ency/patientinstructions/000053.htm>]

How to use an inhaler - no spacer [<https://medlineplus.gov/ency/patientinstructions/000041.htm>]

How to use an inhaler - with spacer [<https://medlineplus.gov/ency/patientinstructions/000042.htm>]

How to use your peak flow meter [<https://medlineplus.gov/ency/patientinstructions/000043.htm>]

Lung surgery - discharge [<https://medlineplus.gov/ency/patientinstructions/000242.htm>]

Make peak flow a habit [<https://medlineplus.gov/ency/patientinstructions/000046.htm>]

Metered dose inhaler use - Series [https://medlineplus.gov/ency/presentations/100200_1.htm]

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Smoking and COPD [<https://medlineplus.gov/ency/patientinstructions/000696.htm>]

Spacer use - Series [https://medlineplus.gov/ency/presentations/100203_1.htm]

Using oxygen at home [<https://medlineplus.gov/ency/patientinstructions/000048.htm>]

Using oxygen at home - what to ask your doctor [<https://medlineplus.gov/ency/patientinstructions/000251.htm>]

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Emphysema [<https://medlineplus.gov/emphysema.html>]

Oxygen Therapy [<https://medlineplus.gov/oxygentherapy.html>]

Pulmonary Rehabilitation [<https://medlineplus.gov/pulmonaryrehabilitation.html>]

National Institutes of Health

The primary NIH organization for research on *COPD* is the National Heart, Lung, and Blood Institute [<http://www.nhlbi.nih.gov/>]

Other Languages

Find health information in languages other than English [<https://medlineplus.gov/languages/copd.html>] on *COPD*

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