



<http://www.womenshealth.gov>

1-800-994-9662

TDD: 1-888-220-5446

Lung Disease

Q: What is lung disease?

A: Lung disease refers to disorders that affect the lungs, the organs that allow us to breathe. Breathing problems caused by lung disease may prevent the body from getting enough oxygen. Examples of lung diseases are:

- Asthma, chronic bronchitis, and emphysema
- Infections, such as influenza and pneumonia
- Lung cancer
- Sarcoidosis (sar-KOY-doh-sis) and pulmonary fibrosis

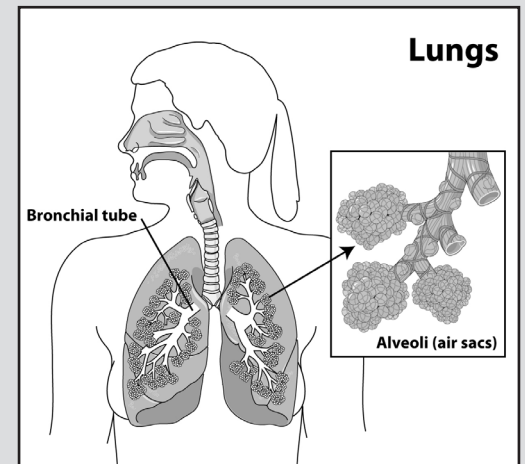
Lung disease is a major concern for women. The number of U.S. women diagnosed with lung disease is on the rise. More women are also dying from lung disease.

Q: What types of lung disease are most common in women?

A: Three of the most common lung diseases in women are asthma, chronic obstructive pulmonary disease (COPD), and lung cancer.

Asthma

Asthma is a chronic (ongoing) disease of the airways in the lungs called bronchial tubes. Bronchial tubes carry air into and out of the lungs. In people with asthma, the walls of these airways become inflamed (swollen) and oversensitive. The airways overreact to things like smoke, air pollution, mold, and many chemical sprays. They also can be irritated by allergens (like pollen and dust mites) and by respiratory infections



The air we breathe enters the lungs through bronchiole tubes. In the lungs, oxygen from the air passes into the bloodstream. The cells of our bodies need this oxygen in order to work and grow. Our cells make carbon dioxide, which passes out of the bloodstream in the lungs. This swapping of oxygen and carbon dioxide happens in the lungs' air sacs.

(like a cold). When the airways overreact, they get narrower. This limits the flow of air into and out of the lungs and causes trouble breathing. Asthma symptoms include wheezing, coughing, and tightness in the chest.

Women are more likely than men to have asthma and are more likely to die from it. The percentage of women, especially young women, with asthma is rising in the United States. Researchers are not sure why. Many experts think that air pollution and allergens play a role in this increase. Breathing tobacco smoke also is linked to an increased risk of asthma.

Chronic Obstructive Pulmonary Disease

Chronic obstructive pulmonary disease



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(COPD) refers to chronic obstructive bronchitis and emphysema. These conditions often occur together. Both diseases limit airflow into and out of the lungs and make breathing difficult. COPD usually gets worse with time.

A person with COPD has ongoing inflammation of the bronchial tubes, which carry air into and out of the lungs. This irritation causes the growth of cells that make mucus. The extra mucus leads to a lot of coughing. Over time, the irritation causes the walls of the airways to thicken and develop scars. The airways may become thickened enough to limit airflow to and from the lungs. If that happens, the condition is called chronic obstructive bronchitis.

In emphysema, the lung tissue gets weak, and the walls of the air sacs (alveoli) break down. Normally, oxygen from the air goes into the blood through these air sac walls. In a person with emphysema, the ruined air sac walls means less oxygen can pass into the blood. This causes shortness of breath, coughing, and wheezing.

More than twice as many women as men are now diagnosed with chronic bronchitis. The rate of emphysema among women has increased by 5 percent in recent years but has decreased among men. And more women have died from COPD than men every year since 2000. Researchers are trying to understand why. Cigarette smoking, a main cause of COPD, has increased among women. One theory is that cigarette smoke is more damaging to women than to men.

Lung cancer

Lung cancer is a disease in which abnormal (malignant) lung cells multiply and grow without control. These

cancerous cells can invade nearby tissues, spread to other parts of the body, or both. The two major kinds of lung cancer are named for the way the cells look under a microscope. They are:

- **Small cell lung cancer.** This kind of lung cancer tends to spread quickly.
- **Non-small cell lung cancer.** This is a term for several types of lung cancers that act in a similar way. Most lung cancers are non-small cell. This kind of lung cancer tends to spread more slowly than small cell lung cancer.

In the United States, more women now die from lung cancer than from any other type of cancer. Tobacco use is the major cause of lung cancer.

Other lung diseases

Less common lung problems that affect women include:

- **Pulmonary emboli.** These are blood clots that travel to the lungs from other parts of the body and plug up blood vessels in the lungs. Some factors that increase your risk include being pregnant, having recently given birth, and taking birth control pills or menopausal hormone therapy. Pulmonary emboli can affect blood flow in the lungs and can reduce oxygen flow into the blood. Very large emboli can cause sudden death.
- **Pulmonary hypertension.** This is high blood pressure in the arteries that bring blood to the lungs. It can affect blood flow in the lungs and can reduce oxygen flow into the blood.
- **Sarcoidosis and pulmonary fibrosis.** These inflammatory diseases cause stiffening and scarring in the lungs.



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- **LAM (lymphangioleiomyomatosis) (lim-FAN-jee-oh-LEE-oh-MEYE-oh-mah-TOH-sis).** This is a rare lung disease that mostly affects women in their mid-30s and 40s. Muscle-like cells grow out of control in certain organs, including the lungs.
 - **Influenza (the flu) and pneumonia.** Flu is a respiratory infection that is caused by a virus and can damage the lungs. Usually, people recover well from the flu, but it can be dangerous and even deadly for some people. Those at greater risk include older people, young children, pregnant women, and people with certain health conditions like asthma. Pneumonia is a severe inflammation of the lungs that can be caused by bacteria, viruses, and fungi. Fluid builds up in the lungs and may lower the amount of oxygen that the blood can get from air that's breathed in. People most at risk are older than 65 or younger than 2, or already have health problems. Vaccines are the best protection against flu and pneumonia.
 - **Radon.** This colorless, odorless gas is present in many homes and is a recognized cause of lung cancer. You can check for radon with a kit bought at many hardware stores. Radon can be reduced in your home if you find out there are high levels.
 - **Asbestos.** This is natural mineral fiber that is used in insulation, fireproofing materials, car brakes, and other products. Asbestos can give off small fibers that are too small to be seen and can be inhaled. Asbestos harms lung cells, causing lung scarring and lung cancer. It can cause mesothelioma (MEZ-oh-THEE-lee-OH-muh), which is a cancer that forms in the tissue covering the lungs and many other organs of the body.
 - **Air pollution.** Recent studies suggest that some air pollutants like car exhaust may contribute to asthma, COPD, lung cancer, and other lung diseases.
- Some diseases that affect the lungs, like the flu, are caused by germs (bacteria, viruses, and fungi).

Q: What causes lung disease?

Experts don't know the causes of all types of lung disease, but they do know the causes of some. These include:

- **Smoking.** Smoke from cigarettes, cigars, and pipes is the number one cause of lung disease. Don't start smoking, or quit if you already smoke. If you live or work with a smoker, avoid secondhand smoke. Ask smokers to smoke outdoors. Secondhand smoke is especially bad for babies and young children.

Smoking causes lung cancer and many other types of lung disease. To get help quitting, visit <http://www.womenshealth.gov/quit-smoking/>.

Q: How would I know if I have a lung disease?

- A:** Early signs of lung disease are easy to overlook. Often, an early sign of lung disease is not having your usual level of energy.

The signs and symptoms can differ by the type of lung disease. Common signs are:



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- Trouble breathing
- Shortness of breath
- Feeling like you're not getting enough air
- Decreased ability to exercise
- A cough that won't go away
- Coughing up blood or mucus
- Pain or discomfort when breathing in or out

Make sure to call your doctor if you have any of these symptoms.

Q: How can I find out if I have asthma?

A: Asthma can be hard to diagnose. The signs of asthma can seem like the signs of COPD, pneumonia, bronchitis, pulmonary embolism, anxiety, and heart disease.

Common symptoms of asthma are:

- Coughing
- Wheezing
- Chest tightness
- Shortness of breath

To diagnose asthma, the doctor asks about your symptoms and what seems to trigger them, reviews your health history, and does a physical exam.

To confirm the diagnosis, the doctor may do other tests, such as:

- **Spirometry** (speye-ROM-eh-tree). The doctor uses a medical machine called a spirometer. This test measures how much air you can breathe in and out. It also measures how fast you can blow air out. The doctor may also give you medicines and then retest you to see if your results improve.

- **Bronchoprovocation** (bron-KOH-prah-vuh-KAY-shun). Your lung function is tested using spirometry while more stress is put on the lungs. This may be during physical activity or after you breathe in increasing doses of a special chemical or cold air.
- **Chest x-ray or EKG (electrocardiogram)**. These tests can sometimes find out if another disease or a foreign object may be causing your symptoms.
- **Other tests.** The doctor may want to test for other problems that might be causing the symptoms. These include stomach acid backing up into the throat, vocal cord problems, or sleep apnea.

Q: How is asthma treated?

A: Asthma is a chronic disease. Medicines can be used to treat asthma, but they cannot cure it. You can help control your symptoms by working with your doctor to set up and then follow a personal asthma action plan. The plan will include possible medications and ways to avoid things that trigger your asthma.

Following an asthma action plan

Your asthma action plan will show:

- The kinds of medicines you should take
- When to take your medicines
- How to regularly monitor your asthma
- Ways to avoid what triggers your asthma
- When to call your doctor or go to the emergency room



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Taking medicines

Asthma medicines work by opening the lung airways. The medicines used to treat asthma fall into two groups: long-term control and quick relief.

Long-term control medicines are to be taken every day, usually over a long period of time. They help prevent symptoms from starting. Once symptoms occur, they do not give quick relief. These medicines include:

- **Inhaled corticosteroids.** These are the preferred medicines for long-term asthma control. They relieve airway inflammation and swelling.
- **Long-acting beta₂-agonists.** These inhaled medicines are often added to low-dose inhaled corticosteroids to improve long-term asthma control.
- **Leukotriene modifiers.** These pills help block the chain reaction that causes inflammation in the airways.
- **Cromolyn and nedocromil.** These inhaled medicines can help keep airways from reacting in response to an asthma trigger.
- **Theophylline.** This is a pill that helps open the airways.

Quick-relief medicines are used only when needed. These include short-acting inhaled beta₂-agonists and short-acting bronchodilators, like albuterol and pirbuteral. Quick-relief medicines often relieve symptoms in minutes. They do this by quickly relaxing tightened muscles around the airways. They are taken when symptoms worsen to prevent a full-blown asthma attack and to stop attacks once they have started.

Avoiding asthma triggers

Avoid things that make your asthma worse. Common asthma triggers are tobacco smoke, animal dander, dust mites, air pollution, mold, and pollens. You can try “fragrance-free” products if your asthma is triggered by fragrances. Talk to your doctor about allergy shots if your asthma symptoms are linked to allergens that you cannot avoid. The shots may lessen or prevent the symptoms but will not cure the asthma. You can reduce your exposure to air pollution by limiting your outdoor activities on days when the air quality in your neighborhood is poor.

Q: What about pregnancy and asthma?

A: If you have asthma and may become pregnant, talk to your doctor. Only in very severe cases might asthma be a reason to avoid becoming pregnant.

If you have asthma and become pregnant, you and your doctor can discuss the safety of your medicines. Changes in the medicines can sometimes make good sense. It is very important to manage your asthma symptoms when you are pregnant. Asthma that gets out of control can harm your baby.

You should also talk with your doctor about getting a flu shot. Flu can be very serious for anyone with asthma, but it's even more of a concern for pregnant women with asthma.

Q: How do I find out if I have chronic obstructive pulmonary disease (COPD)?

A: People with COPD have symptoms that develop very slowly over many years. As a result, many people ignore



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these symptoms until their disease has reached an advanced stage. COPD can be easily diagnosed and can be managed.

The symptoms of COPD include:

- An ongoing cough that often produces large amounts of mucus
- Shortness of breath, especially during physical activity
- Wheezing
- Chest tightness

If you have some or all of these symptoms, make sure to talk to your doctor.

To find out if you have COPD, the doctor will:

- Ask about your symptoms
- Ask about your medical history, including family history
- Ask about your history of exposure to things that can cause COPD, such as tobacco smoke, air pollution, or chemicals
- Do a physical exam, including using a stethoscope to listen for wheezing or other abnormal chest sounds

The main test to check for COPD is spirometry. For this test, you will be asked to take a deep breath and blow as hard as you can into a tube that is connected to a spirometer. This machine measures how much air you breathe out and how fast.

Other tests can include:

- **Chest x-ray or chest computed tomography (CT) scan.** These tests create pictures of the heart and lungs. The pictures can show signs of COPD. They can also show whether your symptoms are caused by another condition, such as heart failure.

- **Arterial blood gas test.** This blood test measures the oxygen and carbon dioxide levels in your blood. It can help determine how severe the COPD is and whether oxygen therapy is needed.

Q: How is COPD treated?

A: Damage to the lungs cannot be repaired. The disease can be slowed by avoiding certain exposures, though. For smokers, the best approach is to stop smoking. You should also limit your exposure to smoke, dust, fumes, and irritating vapors at home and work. Also limit outdoor activities during air pollution alerts. Treatment can relieve symptoms. Common medicines are:

- **Bronchodilators** to open up air passages in the lungs
- **Inhaled steroids** to relieve symptoms by reducing inflammation in the lungs
- **Antibiotics** to clear up infections in the lungs

For patients with COPD, doctors may also recommend:

- **Flu shots.** Influenza (flu) can cause serious problems for people with COPD.
- **Pneumonia shots.** The pneumococcal (NOO-muh-kok-uhl) vaccine reduces the risk of some kinds of pneumonia.
- **Pulmonary rehabilitation.** This treatment helps people cope physically and mentally with COPD. It can include exercise, training to manage the disease, diet advice, and counseling.
- **Oxygen therapy.** The patient



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receives extra oxygen, either through a tube or mask.

- **Surgery.** Sometimes surgery can help people with severe COPD feel better. Lung transplant surgery is becoming more common for people with severe emphysema. Another procedure called lung volume reduction surgery is also used to treat some patients with severe COPD of the emphysema type. In this surgery, the most damaged part of each lung is removed.

Q: How do I find out if I have lung cancer?

A: Usually there are no warning signs of early lung cancer. By the time most people with lung cancer have symptoms, the cancer has become more serious.

Symptoms of lung cancer may include:

- A cough that doesn't go away or gets worse
- Breathing trouble, like shortness of breath
- Coughing up blood
- Chest pain
- Hoarseness or wheezing
- Pneumonia that doesn't go away or that goes away and comes back

In addition, you may feel very tired, have a loss of appetite, or unexplained weight loss. If you have symptoms of lung cancer, it's important to talk to your doctor. The doctor will ask about your health history, smoking history, and exposure to harmful substances. He or she will also do a physical exam and may suggest some tests.

Common tests for diagnosis of lung cancer include:

- **Chest x-rays.** Chest x-rays allow doctors to "see" abnormal growths in the lungs.
- **Computerized tomography scans (CT scans).** CT scans are more powerful than standard x-rays. The images can show subtle signs of cancer that don't show up on x-rays. This can increase the chances of finding the cancer before it spreads further.
- **Sputum cytology.** A sample of mucus that you cough up is studied to see if it has cancer cells in it.
- **Bronchoscopy.** Doctors pass a special tube called a bronchoscope through the nose or mouth and down into the lungs. They can see into the lungs and remove small bits of tissue to test.
- **Fine-needle aspiration.** Doctors pass a needle through the chest wall into the lung to remove a small amount of tissue or fluid.
- **Thoracotomy** (thohr-uh-KOT-oh-mee). Doctors cut open the chest and remove tissue from the lungs.

Q: If I smoke, should I get tested for lung cancer?

A: Testing for cancer before a person has any symptoms is called screening. Screening may help find cancers early, when they may be easier to treat.

Many studies show that screening smokers with x-rays or sputum cytology does not save lives. But recently a major study showed that CT scans of older people who smoke a lot (or used to smoke a lot) can save lives. You can learn more about the results of the study, which is called the National



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Lung Screening Trial. Experts are still working to figure out who should get CT screening. There are risks and benefits to screening for lung cancer.

For now, the U.S. Preventive Services Task Force (USPSTF) makes no recommendation either for or against routine screening for lung cancer. If you're concerned about your lung cancer risk, talk to your doctor about whether screening is right for you. Of course, the best way to reduce your risk of lung cancer is not to smoke.

Q: How is lung cancer treated?

A: Sometimes lung cancer treatments are used to try to cure the cancer. Other times, treatments are used to stop the cancer from spreading and to relieve symptoms.

Your specific treatment will depend on:

- The type of lung cancer
- Where the cancer is and if it has spread to other parts of the body
- Your age and overall health

Your doctor may recommend one treatment or a combination of treatments.

Surgery is used to remove the lung tissue that has the cancerous tumor. Sometimes a large part of a lung or all of it is removed. When the cancer has not spread, surgery can cure the patient.

Radiation therapy uses a machine to aim high-energy x-rays at the tumor. This energy kills cancer cells. Radiation therapy can relieve pain and make a person feel better.

Chemotherapy uses medicine to kill cancer cells. Chemotherapy medicines can be given through a vein or taken as a pill.

Targeted therapy uses medicine to block the growth and spread of cancer

cells. It can be given through a vein or taken as a pill.

To find out about research studies on new treatments for lung cancer, visit <http://www.cancer.gov/clinicaltrials>, which is a website of the National Cancer Institute.

Q: Can I lower my risk for lung disease?

A: Things you can do to reduce your risk of lung diseases include:

- **Stop smoking.** If you smoke, the most important thing you can do is stop. Talk to your doctor about the best way to quit. All kinds of smoking (cigarettes, cigars, pipes, and marijuana) can boost the chances of lung disease.
- **Avoid secondhand smoke.** If you live or work with people who smoke cigarettes, pipes, or cigars, ask them to smoke outside. Non-smokers have the right to a smoke-free workplace.
- **Test for radon.** Find out if there are high levels of the gas radon in your home or workplace. You can buy a radon test kit at most hardware stores. The U.S. Environmental Protection Agency offers information on how to deal with radon.
- **Avoid asbestos.** Exposure to asbestos can cause scarring of the lungs, lung cancer, and other serious lung disease. Asbestos can be a particular concern for those whose jobs put them in contact with it. This includes people who maintain buildings that have insulation or other materials that contain asbestos and people who repair car brakes or clutches. Employers of those



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who work with asbestos should offer training about asbestos safety and should regularly check levels of exposure. They also should provide ways to limit exposure, such as special breathing masks that filter asbestos dust from the air.

- **Protect yourself from dust and chemical fumes.** Working in dusty conditions and with chemicals can increase your risk of lung disease. And the risk is not just from industrial chemicals. Many products used at home, like paints and solvents, can cause or aggravate lung disease. Read labels and carefully follow instructions for use. If possible, avoid using products that cause eye, nose, or throat irritation. If you can't avoid them, use them as little as possible and only in a well-ventilated area. Wear protective equipment such as a special mask. Make sure you know which type of equipment you need

and how to wear it.

- **Eat a healthy diet.** The National Cancer Institute notes that studies show that eating a lot of fruits or vegetables may help lower the risk of lung cancer. Of course, diet can't undo the damage caused by unhealthy behaviors like smoking.
- **Ask your doctor if you should have a spirometry test.** Some groups recommend routine spirometry testing of at-risk people, such as people who are over 45 and smoke and those who are exposed to lung-damaging substances at work.
- **Ask your doctor about protecting yourself from flu and pneumonia with vaccinations.**
- **See your doctor** if you have a cough that won't go away, trouble breathing, pain or discomfort in your chest, or any of the other symptoms described here. ■



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For more information

For more information on lung disease, call womenshealth.gov at 1-800-994-9662 or contact the following organizations:

National Heart, Lung, and Blood Institute

Phone Number(s): 301-592-8573

Internet Address: <http://www.nhlbi.nih.gov>

Centers for Disease Control and Prevention

Phone Number(s): 800-232-4636

Internet Address: <http://www.cdc.gov>

National Cancer Institute

Phone Number(s): 800-422-6237

Internet Address: <http://www.cancer.gov>

Environmental Protection Agency

Phone Number(s): 713-323-1670; 713-323-1671

Internet Address: <http://www.epa.gov>

National Institute of Allergy and Infectious Diseases

Phone Number(s): 301-496-5717; 866-284-4107

Internet Address: <http://www.niaid.nih.gov>

American Lung Association

Phone Number(s): 800-586-4872; 800-548-8252

Internet Address: <http://www.lungusa.org>

National Institutes of Health

Lungs and Breathing

Phone Number(s): 301-496-4000

Internet Address: <http://health.nih.gov/category/LungsandBreathing>



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