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Lung Disease

Q: What do healthy lungs do?

A: Lungs are the organs that allow us to breathe. Lungs provide a huge area (as large as a football field) for oxygen from the air to pass into the bloodstream and carbon dioxide to move out. The cells of our bodies need oxygen in order to work and grow. Our cells also need to get rid of carbon dioxide.

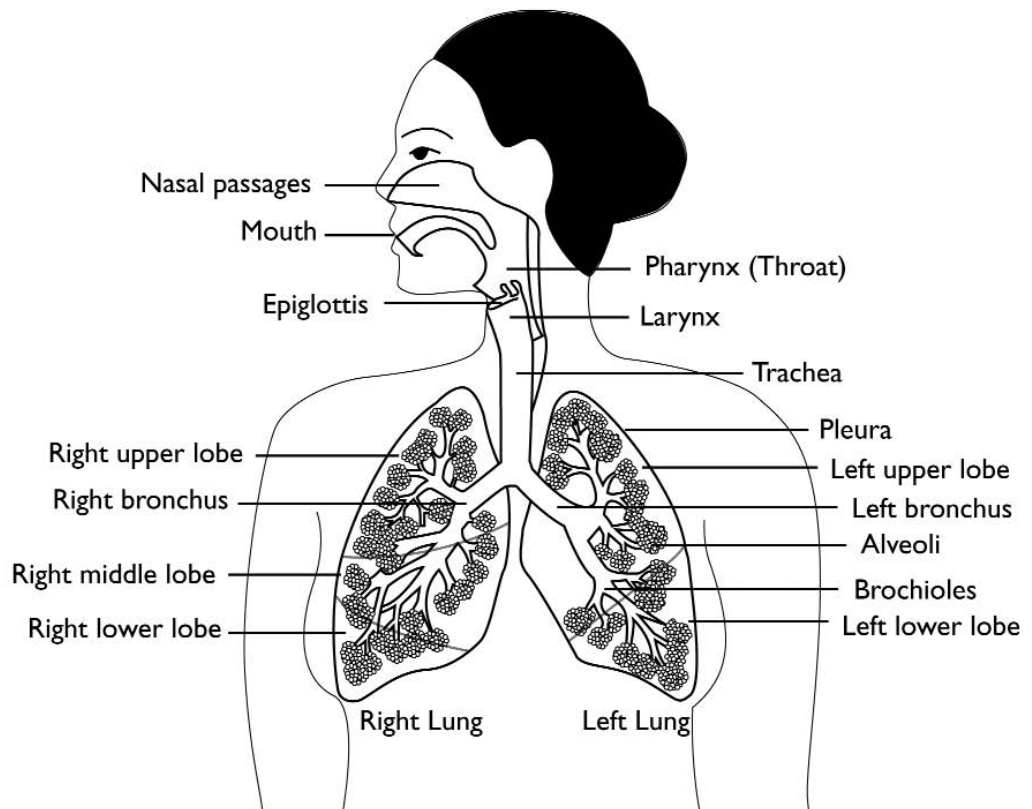
During a normal day, we breathe nearly 25,000 times, and take in (inhale) large amounts of air. The air we take in con-

tains mostly oxygen and nitrogen. But air also has things in it that can hurt our lungs. Bacteria, viruses, tobacco smoke, car exhaust, and other pollutants can be in the air. People with lung disease have difficulty breathing. These breathing problems may prevent the body from getting enough oxygen.

Q: Is lung disease a common health problem?

A: Yes. More than 35 million Americans have an ongoing (or chronic) lung disease like asthma or chronic obstructive pulmonary disease (COPD). If all types of lung disease are lumped together it is the number three killer in the United

Lungs





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States. It causes 1 in 7 deaths in this country each year.

The term lung disease refers to many disorders affecting the lungs such as:

- Ongoing obstructive lung diseases such as asthma, chronic bronchitis, and emphysema
- Infections like influenza, pneumonia and tuberculosis (TB)
- Lung cancer
- Pulmonary embolism and pulmonary hypertension
- Pulmonary fibrosis and sarcoidosis

Q: Should women be worried about lung disease?

A: Yes. The number of women diagnosed with lung disease in the United States is on the rise. The percentage of women dying from lung disease in this country is also increasing.

Here are some other reasons why lung disease is an important health concern for women:

- Lung cancer is the leading cancer killer of women in the United States. It kills more women than breast, ovarian, and cervical cancer combined.
- Deaths from lung cancer among women have risen 150 percent in the last 20 years while deaths among men are decreasing.
- Studies show that women are 1.5 times more likely to develop lung cancer than men.
- About 64,000 women in the United States die every year from chronic obstructive pulmonary disease (COPD).

- Sixty-five percent of people who die from asthma are women.
- More than twice as many women are diagnosed with chronic bronchitis than men every year.

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. Other important but less widespread lung problems that affect women include:

- Pulmonary emboli and pulmonary hypertension – These conditions affect the blood flow and gas exchange in the lungs.
- Sarcoidosis and pulmonary fibrosis – People with these diseases have stiffening and scarring in the lungs.
- Influenza (the flu) – This viral infection can affect the membrane that surrounds the lungs.

This FAQ gives detailed information on asthma, COPD, and lung cancer. For more information on other lung diseases, please visit the web sites of the following organizations:

- **National Heart, Lung, and Blood Institute (NHLBI)**
- **American Lung Association (ALA)**
- **National Institute of Allergy and Infectious Diseases**
- **Centers for Disease Control and Prevention**

Asthma

Asthma is an ongoing or chronic disease of the airways in the lungs called



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bronchial tubes. Bronchial tubes carry air in and out of the lungs. In people with asthma, the walls of the airways become swollen (inflamed) and over-sensitive. Asthmatic airways overreact to things like viruses, smoke, dust, mold, animal hair, roaches, and pollen. When they react they get narrower. This limits the flow of air into and out of the lungs. Asthma causes wheezing, coughing, tightness in the chest and trouble breathing.

About 20 million Americans have asthma. Women are more likely to have asthma than men. In the United States more than 11 million women had asthma in 2003 compared to 8.2 million men.

The percentage of women, especially young women, diagnosed with asthma continues to rise in the United States. Researchers are not sure why. But there are several theories.

Many experts think that more contact with indoor and outdoor allergens and pollution plays a role in increasing the rate of asthma. Exposure to house dust mite and cockroach allergens as well as tobacco smoke is linked to an increased risk of asthma.

Chronic Obstructive Pulmonary Disease (COPD)

COPD is a term that describes related diseases: chronic obstructive bronchitis and emphysema. These conditions often occur together. Both diseases limit airflow out of the lungs and make breathing difficult. COPD gets worse with time.

In almost 90% of cases, smoking is the cause of COPD. The single most important thing a person can do to reduce their risk of lung disease is to stop smoking.

COPD is the fourth leading cause of death in the United States. In 2003, more than 7.2 million women had COPD in this country. And more women have died from COPD than men every year since 2000.

In COPD, there is inflammation of the tubes (bronchial tubes) that carry air in and out of the lungs. This ongoing irritation thickens and scars the lining of the bronchial tubes. The irritation also causes the growth of cells that make mucus.

If the airways become thickened enough to restrict air flow to and from the lungs, the condition is called chronic obstructive bronchitis. The excess mucus leads to a constant cough typical of this illness.

But early signs of COPD are often hard to detect. People often decrease their activity level without even realizing it. And some people just assume age or weight gain is the cause of their lack of energy.

In emphysema, the walls between the air sacs (alveoli) are destroyed and the lung tissue is weakened. Normally oxygen from the air goes into the blood through these air sacs. But as the air sacs become damaged, the lung has less surface area. This interferes with the movement of oxygen from the air into the blood. So less oxygen passes into the blood of people with emphysema. Emphysema causes shortness of breath, cough and wheezing (squeaky sound when breathing).

Still, the early signs of emphysema are often very hard to detect. Since 2004, the rate of emphysema in American women has increased by 5 percent. In contrast, the rate in men has decreased



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by 10 percent. In 2003, approximately 1.4 million women had emphysema.

Lung cancer

Lung cancer is a disease in which abnormal (malignant) lung cells divide without control. These cancerous cells can invade nearby tissues and/or spread to other parts of the body. There are two major kinds of lung cancer: non-small cell lung cancer and small cell lung cancer. Non-small cell lung cancer is the most common kind.

Lung cancer is the leading cancer killer of American women. Lung cancer will kill more than 68,000 women this year. And more and more women are being diagnosed with this disease in the United States. Smoking causes 87% of all cases of lung cancer.

Q: How would I know if there was something wrong with my lungs?

A: Early signs of lung disease can be easy to overlook. Often people with early lung disease just say they don't have much energy.

Some common signs of lung disease include:

- trouble breathing
- shortness of breath
- feeling like you're not getting enough air
- a decreased ability to exercise
- a cough that won't go away
- coughing up blood or mucus
- pain or discomfort when breathing in or out

If you have any of these symptoms, call your doctor immediately. She will be

able to pinpoint what is wrong with you.

Q: How can I decrease my chances of lung disease?

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

- **Stop smoking.** If you are a smoker, the single most important thing you can do to stay healthy is stop smoking. Talk to your doctor about the best way to quit. Smoke from all tobacco products (cigarettes, cigars, and pipes) boosts the chances of lung disease.
- **Avoid second hand smoke.** The best thing you can do to avoid lung disease is to stay away from smoke. If you live or work with people who smoke, ask them to smoke outside. Non-smokers have the right to a smoke-free work place. Keep in mind that cigar and pipe smoke is just as harmful as cigarette smoke.
- **Test for radon.** Find out if there are high levels of radon gas in your home or workplace. People who work in mines are often exposed to radon. And in some parts of the United States, radon is found in houses. Kits you can buy at most hardware stores can measure the amount of radon gas in your home.
- **Steer clear of asbestos.** Some jobs expose workers to asbestos. If you work in construction, shipbuilding, asbestos mining or manufacturing, car repair (brake repair), and insulation you should always wear protective clothing including a face mask. Federal law protects people who work with asbestos. Employers who



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work with asbestos must train their workers about asbestos safety, provide protective gear, and monitor the levels of radon to which workers are exposed.

- **Protect yourself from dust and chemical fumes.** Working with some chemicals like vinyl chloride and nickel chromates increases the risk of lung cancer. If you spend a lot of time working around dust and chemical fumes, protect yourself. Wear protective clothing including a gas mask and ventilate work areas.
- **Eat a healthy diet.** Limited research shows that people who eat diets rich in fruits and vegetables have a lower risk of cancer. The American Cancer Society recommends eating 5 to 6 servings of fruits and vegetables every day.
- **Ask your doctor about spirometry testing.** This test checks how well you can breathe. Some groups recommend routine spirometry testing in at-risk groups. If you're a smoker over the age of 45, are exposed to lung-damaging substances at work, or have other risk factors you should consider spirometry.
- **See your doctor right away** 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 in this FAQ.

Q: What causes lung disease?

A: There are many known causes of lung disease. Still, the causes of many lung diseases are still not known. Some known causes of lung disease include:

- **Smoking.** Smoke from cigarettes, cigars and pipes is the number one cause of lung disease. So the best thing you can do to reduce your risk of lung disease is to stop smoking. If you live or work with a smoker, it is also very important to steer clear of second hand smoke. Ask the person to smoke outdoors.
- **Radon gas.** Radon gas is the second leading cause of lung cancer. Radon is naturally present in soil and rocks. You can check your home for radon with a kit bought at many hardware stores.
- **Asbestos.** Asbestos is natural fiber that comes from minerals. The fibers break apart easily into tiny pieces that can float in the air and stick to things. If a person inhales asbestos particles, they can stick to their lungs. Asbestos harms lung cells which may lead to lung cancer.
- **Air Pollution.** Recent studies suggest that some air pollutants like car exhaust may contribute to asthma, lung cancer, and other lung disease. But doctors still do not fully understand the link between pollution and lung disease.

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

A: Asthma can be hard to diagnose. This is because the signs of asthma are similar those of other lung diseases. The signs of COPD, pneumonia, bronchitis, pulmonary embolism, anxiety and heart disease can all be confused for asthma. It is important to note that women are misdiagnosed with asthma when they really have COPD more often than men.



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To figure out if asthma is causing your discomfort, the doctor will first ask about your symptoms and health history. She will then do a physical exam.

To confirm the diagnosis, the doctor may run any of the following tests:

- **Spirometry:** The doctor uses a machine called a spirometer to see how well you breathe. This test measures how much air you can blow out of your lungs. It also records how fast you can exhale it. If these measurements are lower than normal, you may have asthma. But sometimes people with asthma have normal spirometry results.
- **Bronchodilator (Brong-ko-di-LA-tor) Reversibility Testing:** If your spirometry test is abnormal, your doctor will ask you to inhale a medicine called a bronchodilator. Then the doctor repeats spirometry to measure how this medicine affects your breathing. Bronchodilators relax muscles around the airways making it easier to breathe.
- **Challenge Test:** If the diagnosis is still unclear after spirometry and bronchodilator reversibility testing, doctors often suggest a challenge test. During this test you will inhale a medicine that narrows the airways in your lungs. After you inhale the medicine, the doctor will do a spirometry test. If you have asthma, the medicine will reduce the amount and speed of the air exhaled.

The doctor may also suggest other tests to make sure another disease is not causing your problems. These include:

- **Chest x ray:** This allows the doctor to see the condition of your lungs. Chest x rays can help the doctor to

see if other lung diseases or infections are causing your symptoms.

- **Electrocardiogram:** An electrocardiogram is a test that records the electrical activity of the heart. An electrocardiogram allows the doctor to see if heart disease is causing your breathing problems.

Q: How is asthma treated?

A: Asthma is a chronic disease that cannot be cured. But medicines and lifestyle changes can help control the symptoms. One way to help relieve asthma is to avoid things in the environment that make symptoms worse. A number of types of medicines are also used to treat asthma. Most work by opening the lung airways and reducing inflammation.

The medicines used to treat asthma fall into two groups: quick-relief and long-term control.

Quick-Relief

Quick relief medicines are used only when needed. They should be taken when symptoms are getting worse to prevent a full-blown asthma attack. They can also be used to stop attacks once they have started. These medicines relieve symptoms in minutes. Short-acting inhaled bronchodilators (albuterol and pirbuterol) are two commonly used quick relief medicines. They quickly relax tightened muscles around the airways.

Long-Term

Long-term control medicines or controller medicines are taken every day, usually over a long period of time. Over time, these medicines relieve symptoms and prevent asthma attacks in those with mild or moderate persistent asthma.



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These medications help control inflammation in the lungs. To be effective, they must be used every day. These medicines are not intended to relieve symptoms immediately. Some may even take a few weeks to have their full effect.

Some long-term control medicines include:

- Cromolyn and nedocromil – These inhaled medicines keep airways from swelling when a person comes in contact with a trigger.
- Corticosteroids – These medicines can be inhaled or taken in a pill form. They can prevent and decrease swelling in the airways. Corticosteroids can also decrease the amount of mucus.
- Anti-leukotrienes – These medicines come in a pill. They open the airways, control swelling and inflammation, and reduce mucus.
- Long-acting beta 2 bronchodilators – Over time, these inhaled medicines help relieve symptoms. They are often combined with anti-inflammatory medicines

Staying away from triggers, taking your medicine consistently, and regular visits to the doctor will help you take control of asthma.

Q: I just found out I'm pregnant, should I still take my asthma medicines?

A: It is very important to call your doctor as soon as you find out you're pregnant. As your doctor will explain, it is extremely important to manage your asthma symptoms when you are pregnant. Taking asthma medicines and

avoiding triggers helps make sure the baby gets enough oxygen. Untreated asthma can harm a growing fetus.

Many asthma medicines seem to be safe for use during pregnancy. Inhaled medicines are usually preferred for pregnant women. These medicines are less likely to be passed on to the baby than oral medicines. However, sometimes pregnant women need oral medicines to control symptoms. Talk with your doctor about the safety of asthma medicines during pregnancy. You should also talk to your doctor about getting a flu shot after the first trimester. The flu can be very serious for pregnant women with asthma.

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

A: If you smoke, have a cough that won't go away, and shortness of breath see your doctor. To figure out if you have COPD, doctors usually:

- Ask about your family and personal health history.
- Do a physical exam.
- Run some pulmonary function tests.
- Perform spirometry (speh-ROM-eh-tree) testing. During this test, the doctor uses a machine called a spirometer to see how well you breathe. This test measures how much air you can blow out of your lungs (lung volume). It also records how fast you can exhale it.
- Perform bronchodilator (brong-ko-di-LA-tor) reversibility testing. During this test you will inhale a medicine called a bronchodilator.



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Then the doctor uses a spirometer to measure how this medicine affects your breathing. Bronchodilators relax muscles around the airways making it easier to breathe.

Your doctor may also suggest other tests like chest x rays to make sure something else is not causing your problems. X rays may allow the doctor to see if another lung disease or heart disease is causing your symptoms.

Q: How is chronic obstructive pulmonary disease (COPD) treated?

A: The damage to the lungs in COPD cannot be repaired. But treatment can relieve symptoms. The only thing that can slow the progress of the disease is to stop smoking. So if you're a smoker, the single most important thing you can do is stop smoking. This slows down COPD and minimizes future damage to the lungs.

Medicines can also help you feel better. Common medicines used to treat COPD include:

- Bronchodilators. These medicines open up air passages in the lungs.
- Inhaled steroids. These medicines relieve symptoms by reducing inflammation in the lungs.
- Antibiotics: These medicines are used to clear up infections in the lungs.

Sometimes doctors also recommend the following for women with COPD:

- **Get a flu shot every year.** Influenza (flu) can cause serious problems for people with COPD.
- **Get the pneumococcal vaccine.**

This vaccine reduces the risk of some kinds of pneumonia.

- **Pulmonary rehabilitation.** Pulmonary rehabilitation is a program that helps people cope physically and mentally with COPD. It can include exercise, training to manage the disease, diet advice and counseling.
- **Oxygen therapy.** Oxygen therapy helps women with severe COPD. Oxygen is inhaled through a mask or a tube connected to a tank filled with 100% oxygen. This extra oxygen helps them breathe easier, sleep better, and live longer.
- **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 a small subset of people with severe COPD of the emphysema type. In this surgery, a part of the 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. But if there is a sign, it is usually a cough. By the time most women have symptoms, the lung cancer often has advanced to more serious stages.

Symptoms of lung cancer may include:

- a cough that doesn't go away or gets worse
- coughing up blood
- frequent chest pain



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- hoarseness or wheezing
- frequent problems with bronchitis or pneumonia
- loss of appetite or weight loss
- exhaustion

If you have any of these problems, call your doctor as soon as possible. The doctor will ask about your personal and family health history, smoking history, and exposure to harmful substances. She will also do a physical exam and may suggest some tests.

Common tests for lung cancer include:

- **Chest x rays.** Chest x rays allow doctors to “see” abnormal growths in the lungs.
- **Computerized tomography scans (CT scans).** A growing number of doctors use CT scans to diagnose lung cancer. CT scans are more powerful than standard x rays. CT images can reveal subtle signs of cancer that don’t show up on x rays. This boosts the chances of finding cancer in its early, more treatable, stages.
- **Biopsy.** In this test, the doctor removes a small piece of lung tissue and studies it under a microscope. There are many ways to take a biopsy including:
 - Bronchoscopy is often used to remove lung tissue for a biopsy. Doctors put a special tube called a bronchoscope into the nose or mouth and down through the throat. They can see the lungs and remove a sample of tissue with this tube.
 - Sputum Cytology is another way to do a lung biopsy. In this test,

doctors study a sample of mucus that is coughed up. The mucus may contain cancer cells.

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

A: Talk to your doctor. Some doctors suggest testing smokers over 50 years of age for lung cancer. But experts still are not sure if routine testing (screening) saves or prolongs lives.

Testing for cancer before a person has any symptoms is called screening. Screening tends to find cancers early when it is easier to cure and treat. Screening high-risk groups (like smokers) for lung cancer is a controversial issue.

Many studies show that using x rays to screen smokers for lung cancer does not save lives. For this reason, the National Cancer Institute and the U.S. Preventive Services Task Force (USPSTF) do not recommend screening for lung cancer. It is important to note that the USPSTF does not recommend **against** screening either. More studies are needed to show the exact risks and benefits of screening for lung cancer. Some groups do recommend screening in at-risk groups including smokers over 45 years and people exposed to lung-damaging substances at work.

Computerized tomography scans (CT scans) show promise as a screening tool. The National Cancer Institute is doing an important study called the National Lung Screening Trial (NLST) to answer important questions about routine testing for lung cancer. This study will show if screening with CT scans and/or chest x rays can save lives.



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Q: How is lung cancer treated?

A: Most lung cancer is hard to treat. The best way to fight lung cancer is to never start smoking or to stop smoking. If you need help to stop smoking, talk to your doctor. A government website all about quitting smoking can also help you kick the habit.

Lung cancer can be treated in a number of different ways including a combination of surgery, radiation, and chemotherapy. Most of the time treatment does not cure the cancer but stops it from spreading and relieves symptoms. Your specific treatment will depend on:

- kind of lung cancer,
- where the cancer is and if it has spread to other parts of the body,

- your age,
- and overall health.

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 injected into a vein or taken as a pill.

Surgery is used to remove tumors.

To find out about research studies on new treatments for lung cancer, visit the website of the National Cancer Institute (www.cancer.gov) and click on “clinical trials.” ■

For more information...

You can find out more about lung disease by contacting the National Women’s Health Information Center (NWHIC) at 1-800-994-9662 or the following organizations:

National Heart, Lung, and Blood Institute

Phone Number: (301) 592-8573

Internet Address:

<http://www.nhlbi.nih.gov/index.htm>

National Institute of Allergy and Infectious Diseases

Phone Number: (301) 496-5717

Internet Address:

<http://www3.niaid.nih.gov>

American Lung Association

Phone Number: (800) 586 4872

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

Centers for Disease Control and Prevention

Phone Number: (800) CDC-INFO

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

National Cancer Institute

Phone Number: 1-800-4cancer

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



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Reviewed by:

Gail Weinmann, MD

Director, Airways Biology and Disease Program
National Heart, Lung, and Blood Institute

James Kiley, Ph.D.

Director, Division of Lung Diseases
National Heart, Lung, and Blood Institute

Hannah Peavy, M.D.

Medical Officer, Division of Lung Diseases
National Heart, Lung, and Blood Institute

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