



Lung Diseases Overview

COVID-19 is a new disease and there is limited information regarding risk factors for severe disease. Based on currently available information and clinical expertise, older adults and people of any age who have serious underlying medical conditions might be at higher risk for severe illness from COVID-19. People of all ages with underlying medical conditions, particularly if not well controlled, including people with chronic lung disease or moderate to severe asthma. What follows is an overview of the main lung diseases.

Lung diseases are some of the most common medical conditions in the world. Tens of millions of people have lung disease in the U.S. alone. Smoking, infections, and genes cause most lung diseases.

Your lungs are part of a complex system, expanding and relaxing thousands of times each day to bring in oxygen and send out carbon dioxide. Lung disease can happen when there are problems in any part of this system.

Lung Diseases Affecting the Airways

Your windpipe (trachea) branches into tubes called bronchi, which in turn become smaller tubes throughout your lungs. Diseases that can affect these airways include:

- **Asthma.** Your airways are constantly inflamed and may spasm, causing wheezing and shortness of breath. Allergies, infections, or pollution can trigger asthma symptoms.
- **Chronic obstructive pulmonary disease (COPD).** With this lung condition, you can't exhale the way you usually would, which causes trouble breathing.
- **Chronic bronchitis.** This form of COPD brings a long-term wet cough.
- **Emphysema.** Lung damage allows air to be trapped in your lungs in this form of COPD. Trouble blowing air out is its hallmark.
- **Acute bronchitis.** This sudden infection of your airways is usually caused by a virus.
- **Cystic fibrosis.** With this condition, you have trouble clearing mucus out of your bronchi. This leads to repeated lung infections.

Lung Diseases Affecting the Air Sacs (Alveoli)

Your airways branch into tiny tubes (bronchioles) that end in clusters of air sacs called alveoli. These air sacs make up most of your lung tissue. Lung diseases affecting your alveoli include:

- **Pneumonia.** An infection of your alveoli, usually by bacteria or viruses, including the coronavirus that causes COVID-19.
- **Tuberculosis** Pneumonia that slowly gets worse, caused by the bacteria *Mycobacterium tuberculosis*.
- **Emphysema.** This happens when the fragile links between alveoli are damaged. Smoking is the usual cause. (Emphysema also limits airflow, affecting your airways.)
- **Pulmonary edema.** Fluid leaks out of the small blood vessels of your lung into the air sacs and the area around them. One form is caused by heart failure and back pressure in your lungs' blood vessels. In another form, injury to your lung causes the leak of fluid.
- **Lung cancer.** It has many forms and may start in any part of your lungs. It most often happens in the main part of your lung, in or near the air sacs.
- **Acute respiratory distress syndrome (ARDS).** This is a severe, sudden injury to the lungs from a serious illness. COVID-19 is one example. Many people who have ARDS need help breathing from a machine called a ventilator until their lungs recover.
- **Pneumoconiosis.** This is a category of conditions caused by inhaling something that injures your lungs. Examples include black lung disease from coal dust and asbestosis from asbestos dust.

Lung Diseases Affecting the Interstitium

The interstitium is the thin, delicate lining between your alveoli. Tiny blood vessels run through the interstitium and let gas transfer between the alveoli and your blood. Various lung diseases affect the interstitium:

- **Interstitial lung disease (ILD).** This is a group of lung conditions that includes sarcoidosis, idiopathic pulmonary fibrosis, and autoimmune disease.
- **Pneumonia** and **pulmonary edema** can also affect your interstitium.

Lung Diseases Affecting Blood Vessels

The right side of your heart gets low-oxygen blood from your veins. It pumps blood into your lungs through the pulmonary arteries. These blood vessels can have diseases, as well.

- **Pulmonary embolism (PE).** A blood clot (usually in a deep leg vein, called deep vein thrombosis) breaks off, travels to your heart, and gets pumped into your lungs. The clot sticks in a pulmonary artery, often causing shortness of breath and low blood oxygen levels.
- **Pulmonary hypertension.** Many conditions can cause high blood pressure in your pulmonary arteries. This can lead to shortness of breath and chest pain. If your doctor can't find a cause, they'll call it idiopathic pulmonary arterial hypertension.

Lung Diseases Affecting the Pleura

The pleura is the thin lining that surrounds your lung and lines the inside of your chest wall. A tiny layer of fluid lets the pleura on your lung's surface slide along the chest wall with each breath. Lung diseases of the pleura include:

- **Pleural effusion.** Fluid collects in the space between your lung and the chest wall. Pneumonia or heart failure usually causes this. Large pleural effusions can make it hard to breathe and may need to be drained.
- **Pneumothorax.** Air may get into the space between your chest wall and the lung, collapsing the lung.
- **Mesothelioma.** This is a rare form of cancer that forms on the pleura. Mesothelioma tends to happen several decades after you come into contact with asbestos.

Lung Diseases Affecting the Chest Wall

Your chest wall also plays an important role in breathing. Muscles connect your ribs to each other, helping your chest expand. Your diaphragm descends with each breath, also causing chest expansion. Diseases that affect your chest wall include:

- **Obesity hypoventilation syndrome.** Extra weight on your chest and belly can make it hard for your chest to expand. This may cause serious breathing problems.
- **Neuromuscular disorders.** You might have trouble breathing when the nerves that control your respiratory muscles don't work the way they should. Amyotrophic lateral sclerosis and myasthenia gravis are examples of neuromuscular lung disease.

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