



# MDwise

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## Breathing Problems: How Your Lungs Work

### What do your lungs do?

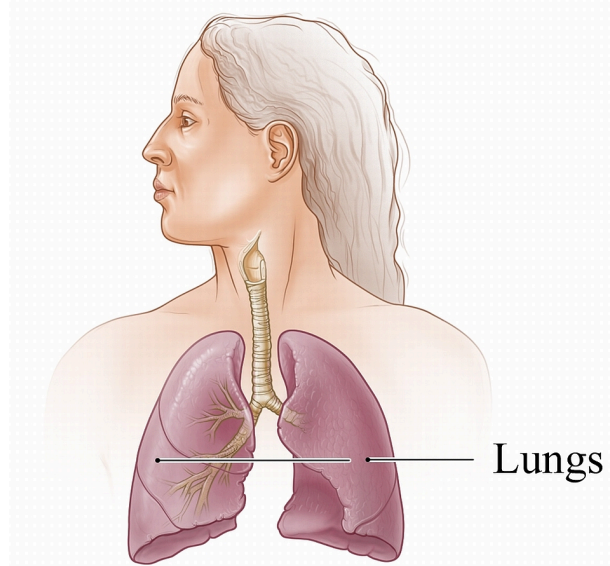
All of your body's organs and tissues need oxygen from the air. They must also get rid of carbon dioxide, a waste product. Your lungs quickly take carbon dioxide out of your blood and put oxygen in. Your blood carries oxygen to cells all over your body.

### How does breathing work?

Your lungs are made of spongy tissue that stretches as you breathe. Under your lungs, a flat muscle called the diaphragm separates your lungs from your belly. The diaphragm, along with muscles in your chest, expands and contracts your lungs so you can breathe air in and out. Although you can control your breathing if you think about it, most of the time it is automatic. Your body adjusts when you need more or less oxygen. There are sensors in your brain that know when you need more oxygen or less carbon dioxide in your blood and cause you to breathe harder.

### What is respiration?

There are airways in your lungs called bronchial tubes that divide into very small branches. The branches end in tiny air sacs called alveoli. The air sacs in your lungs are surrounded by tiny blood vessels. When you breathe in, oxygen moves out of the air sacs and into the blood vessels and then on to your bloodstream. At the same time, carbon dioxide moves out of your blood and into the air sacs. You remove the carbon dioxide from your lungs when you breathe out. This process is



called respiration.

### Filtering the air

Although your lungs are inside your body, they are constantly exposed to the outside world. Many things enter your body in the air you breathe. These include dust, pollen, viruses, bacteria, cigarette smoke, and exhaust fumes. Your lungs produce mucus to remove harmful particles when you cough.

### Lung problems

Harmful particles in your lungs can get in the way of breathing, making it hard to breathe. Sometimes this causes short-term problems. Examples include a lung infection with bacteria or a virus, or a cough from breathing in smoke or dust. Over time, breathing in things like cigarette smoke can cause permanent damage. This can lead to a long-term breathing problem, such as chronic

obstructive pulmonary disease (COPD).



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