

Section 1.

How the lungs work

Why do we need air? Because we could not survive without the oxygen in the air that we breathe.

You have two lungs, which together form one of the largest organs in your body. The lung on the left is a bit smaller than the lung on the right. Why? Because it has to leave a bit of room for your heart to fit into your chest. The lungs and heart are close to each other because they have to work together.

Your rib cage goes around your lungs and heart to protect them. Your ribs also move when you breathe in and out.

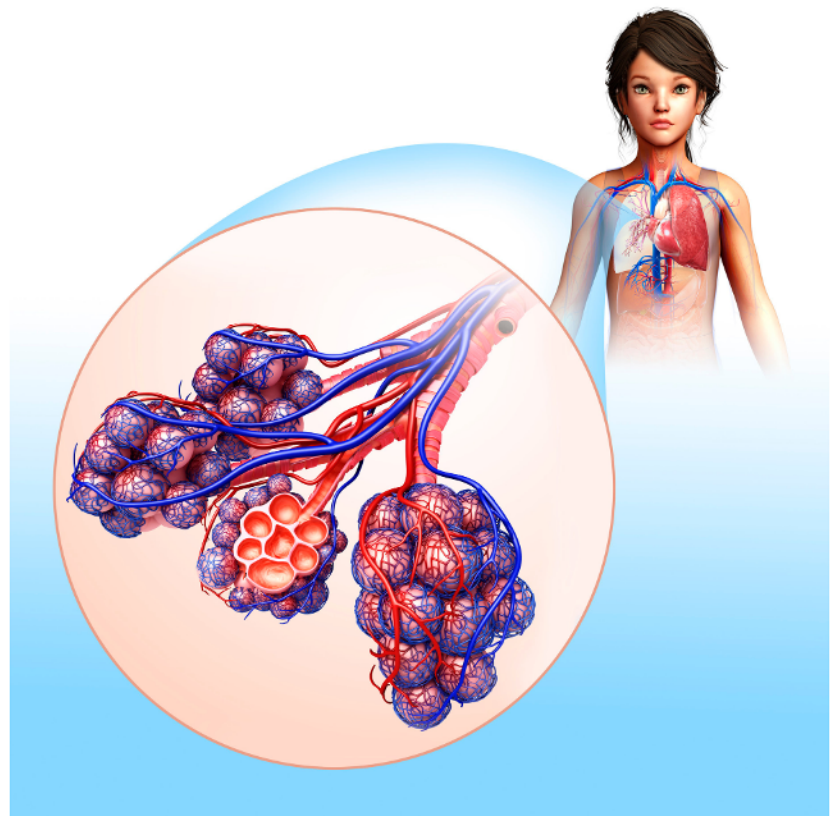
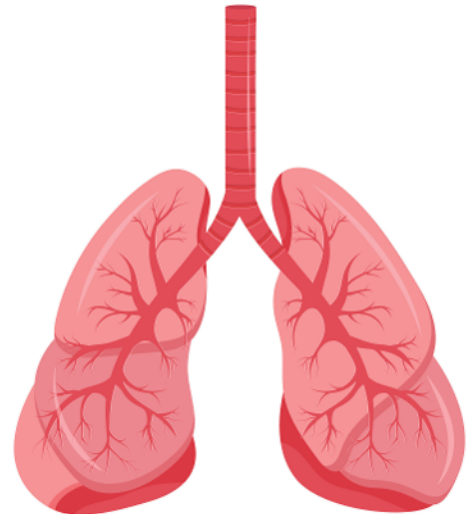
What do your lungs look like?

If you could see your lungs, they would look pink and rubbery. Inside they look a lot like sponges. Air comes in through your nose or mouth and goes down the trachea or windpipe, into two large tubes called the bronchi. One bronchus goes to the right lung and one goes to the left lung.

Each bronchus is like the trunk of a tree because it has what look like branches and twigs growing from it. The smallest twigs are called bronchioles. They are so tiny that they are like hairs.

At the end of the bronchioles, there are little bunches of air sacs called alveoli. You would need a powerful microscope to see the alveoli. Each alveolus or air sac is covered in even tinier blood vessels called capillaries.

Alveoli are tiny air sacs at the end of the bronchioles. They are covered in tiny blood vessels. This is where oxygen from the air enters your blood and carbon dioxide leaves your blood.



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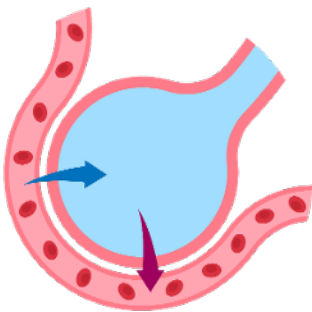
What happens when you breathe?

Below your lungs is the diaphragm. This is a big muscle that works with your lungs to get air into your body (inhale) and out (exhale). Despite how big your lungs are, they do not have muscles, so we need the diaphragm. The diaphragm makes the lungs move in and out.

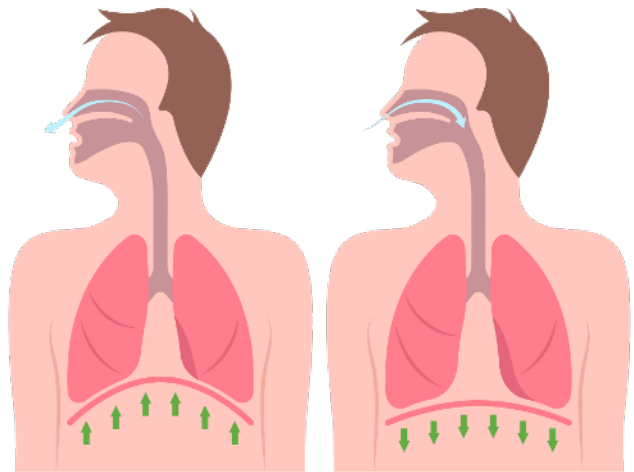
Your diaphragm flattens out when you breathe in, your ribcage lifts up and air fills all the little air sacs. At that point, oxygen goes through the walls of the air sacs, into the capillaries, and into your bloodstream. The heart pumps that new oxygen to all parts of the body.

When you breathe out, the opposite happens. The diaphragm expands and pushes air out of the lungs. Carbon dioxide is removed from the blood, and it is pushed out of the lungs and body through your nose and mouth.

Take a breath. Think about all the things that are happening in your body when you take just one breath!



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Below your lungs is a large muscle called the diaphragm. When you breathe in, your diaphragm flattens out and your lungs expand. When you breathe out, the opposite happens: the diaphragm expands and pushes air out of the lungs.

Did you know?

- Lungs contain approximately 2,400 kilometres of airways. The lungs of three people contain enough airways to reach from one end of Canada to the other!
- There are 300 to 600 million alveoli in your lungs. If you stretched all of them out, they would be about the size of four and a half 18-wheelers parked next to each other!
- If stretched out, the total surface area of lungs would be about the same size as half a tennis court.

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How your body protects your lungs from dirt and dust

When you breathe in, the air goes in through your nose or mouth. The air you breathe in may have tiny particles of dust and dirt in it. On its way to your lungs, your body will clean the air to keep these particles from getting into your lungs. The mucus in your airway traps dust and dirt. Little hairs called cilia that line the inside of your nose and throat beat back and forth in waves to move the mucus like a conveyor belt up the airway so you can cough it up and out of your body.

Things you can do to keep your lungs healthy

- Don't vape or smoke
- Stay away from second-hand smoke and vape emissions
- Get plenty of exercise
- Eat nutritious food
- Stay away from chemicals that can irritate your lungs. Make sure doors and windows are open if you're using cleaners, especially ones that contain harsh chemicals. Limit your use of aerosols (spray cans), like hair spray or air fresheners.
- Stay away from fires, including camp fires. If there smoke in the air outside from nearby forest fires, don't spend a lot of time outside.