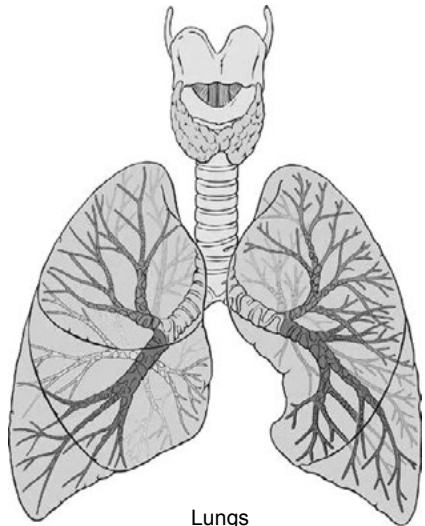


Lung

The lungs are part of the respiratory system. They help the body take in oxygen and release carbon dioxide and other gaseous waste. We only use 40 to 50 percent of our lung's capacity, whereas 70 percent of waste from our lungs is eliminated just by breathing. On an average, we breathe nearly 11,000 litres of air per day and 25,000 times a day.

Structure

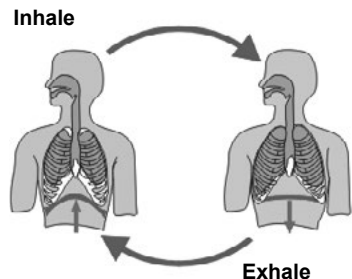
The lungs are divided into two parts, the right and left lungs. They are located within the upper chest, behind the ribs and sternum. They comprise only 10% tissue, while the rest of the space is reserved for air. While the right lung has three lobes, the left lung has only two lobes and it is slightly smaller in size to accommodate the heart. The process of breathing starts with the airway. Once breath enters the body through the nose and mouth, the air goes through the trachea and enters the bronchi. The bronchi are two tubes that carry air into the lungs. The larger bronchi break down into smaller branches, called bronchioles. At the end of the bronchioles are tiny air sacs call alveoli, which absorb oxygen from the air.



Functions

The lungs function at their peak during late teens to early twenties. After that, their capacity keeps reducing by one percent every year for the rest of one's life. For smokers, the lung capacity decreases by two percent every year. Major functions of the lung include:

- They filter oxygen from the inhaled air, supply it to the blood



and remove carbon dioxide from the body, which is a waste gas from metabolised food leaving the blood.

- Lungs maintain the pH of blood by facilitating alterations in the partial pressure of carbon dioxide.
- Lungs serve as a layer of soft, shock-absorbent protection for the heart.
- They secrete Immunoglobulin-A, which protects against respiratory infections.
- They also maintain sterility by producing mucus containing antimicrobial compounds.

Problems

Problems associated with the lungs are:

Asthma: Asthma is a chronic lung disease characterised by inflammation of the bronchi and bronchioles, and episodes of airway obstruction (asthma attacks).

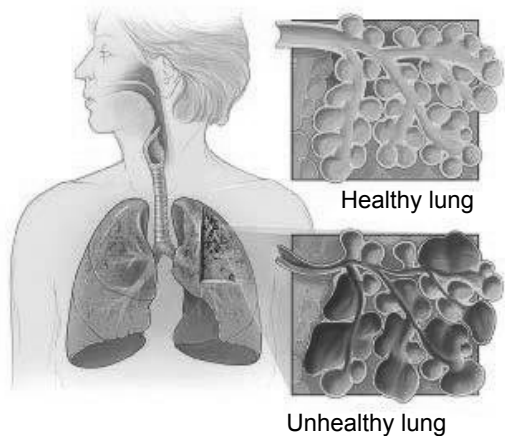
Chronic Obstructive Pulmonary Disease (COPD): In this disorder, patients experience increasing difficulty in exhaling and inhaling sufficient oxygen.

Pulmonary fibrosis: It is characterised by damage and scarring to the tissues between the air sacs, inflammation of the air sacs, and stiffening of the lungs.

Infections: Infections may be caused by bacteria, viruses, and more rarely, fungi. Some commonly occurring infections include pneumonia, influenza, and tuberculosis.

Lung cancer: There are two main types, small cell and non-small cell lung cancers. Smoking is a leading cause of lung cancer.

Stale air: The inhaled air may not be exhaled out completely. There will always be a certain quantity of stale air (about 20%) blocked inside the lungs. It does not get replaced by fresh air.



Causes

Smoking and air pollution are major causes of concern for lung health. Almost 80 to 90 percent of deaths associated with Chronic Obstructive Pulmonary Disease (COPD) are due to smoking. Other causes include repeated exposure to organic and



inorganic substances, such as asbestos, coal, beryllium and silica, mould, hay, animal droppings and grain dust, or exposure to toxic chemicals and drugs, radiation treatment, and auto-immune disorders, among others. Sometimes, lungs are unable to remove or detoxify foreign substances, possibly because of an underlying deficiency or an overwhelming amount of these substances that weaken the lung's defence systems.

Symptoms

- Chronic cough
- Shortness of breath
- Chronic mucus production
- Wheezing
- Coughing up blood
- Chronic chest pain