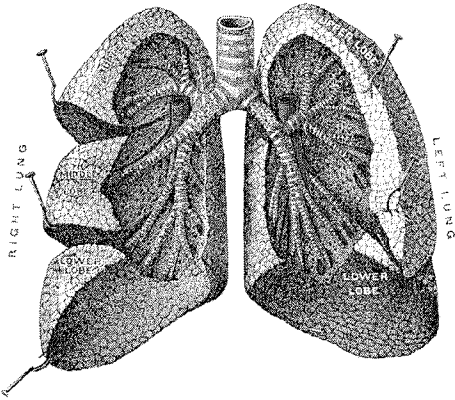


INTRICATE CONSTRUCTION



Our lungs fuel us with oxygen, which we breathe in air, and extract the oxygen and pass it into the bloodstream, where it's rushed off to the tissues and organs to perform their function.

Oxygen drives the process of respiration, which provides our cells with energy. The waste gas carbon dioxide is produced and disposed of by the lungs. Without this vital exchange, our cells would quickly die and the body would suffocate.

Intricate Construction

Our two lungs are filled with a complex latticework of tubes, which are suspended, on either side of the heart, inside the chest cavity, by a framework of elastic fibers. At the top of the mouth and the nose, the latter acting as an air filter, air enters the lungs through the trachea, which is passing down the windpipe, where it's divided at the bottom into two main bronchi that lead to either lung.

Within the lungs, the main bronchi split like the branches of a tree into tens of thousands of ever smaller tubes (bronchioles), which connect to tiny sacs called alveoli. The average adult's lungs contain about 600 million of these spongy, air-filled structures. There are enough alveoli in just one lung to cover an area roughly the size of a tennis court.

The alveoli are the site of gas exchange. As we breathe in, oxygen enters the lungs and passes through the thin walls of the alveoli into the bloodstream. At the same time, carbon dioxide, which is a waste gas, is expelled as we breathe out.

The rate at which we breathe is controlled by the brain, which is quick to sense changes in gas concentrations. This is particularly true in the brain, which has the body's highest need of oxygen and the first to suffer from a shortage.

In and Out

Breathing is done mainly by the diaphragm, a sheet of muscles between the chest and abdomen. The diaphragm contracts when we breathe in, expanding the lungs and drawing in air. We breathe out simply by relaxing the diaphragm; the lungs deflate like balloons.

The lungs are delicate organs and vulnerable to damage. The most common cause of lung disease is smoking, which is linked to lung cancer, which is the leading cause of death in the United States.