
# Physiology

## Lecture 6

## The Respiratory System

M.Sc Nidaa fadhil

M.Sc Ehab Fouad

# Respiratory System

The respiratory system is the system in the human body that enables us to breathe.

## Basic Function

is to exchange oxygen and carbon dioxide between blood, air and tissue.

## Respiratory System Consists of:

– Nose/Nasal Cavity

– Pharynx

– Larynx

– Trachea

– Bronchi

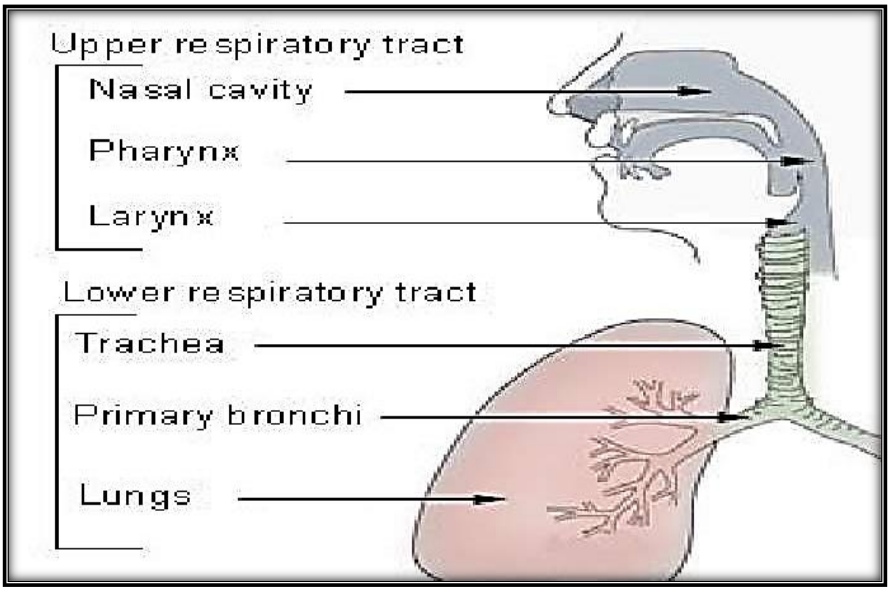
– Lungs

**The respiratory system is divided into two parts:**

1. **Upper respiratory tract:**

This includes the nose, mouth, and the beginning of the trachea (the section that takes air in and lets it out).

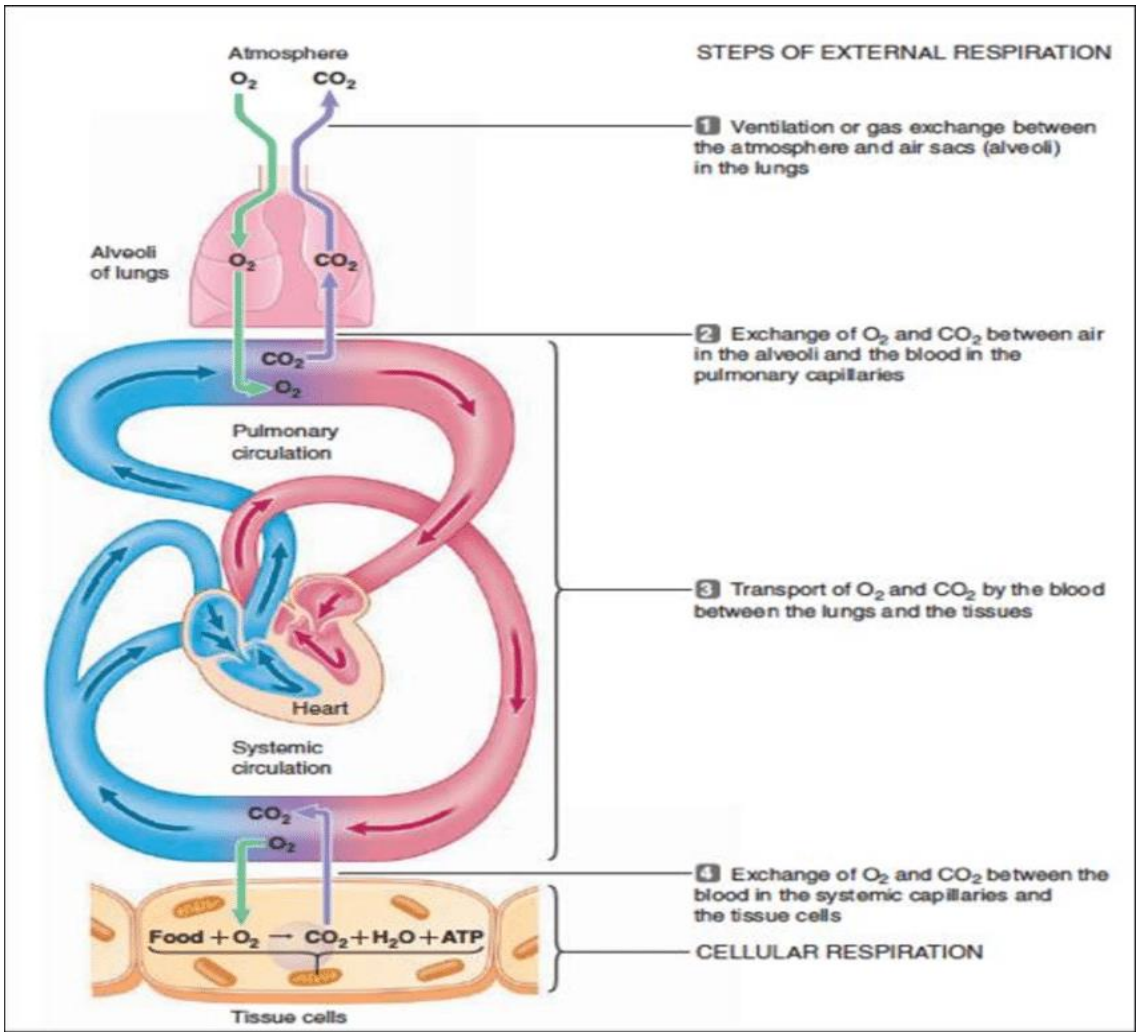
2. **Lower respiratory tract:**
   This includes the trachea, the bronchi, broncheoli and the lungs (the act of breathing takes place in this part of the system).



## The steps of respiration

There are five steps of respiration (figure 2):

1. Ventilation: Exchange of air between atmosphere and alveoli by bulk flow.
2. Exchange of O2 and CO2 between alveolar air and blood in lung capillaries by diffusion.
3. Transport of O2 and CO2 through pulmonary and systemic circulation by bulk flow.
4. Exchange of O2 and CO2 between blood in tissue capillaries and cells in tissues by diffusion.
5. Cellular utilization of O2 and production of CO2.



## Breathing

• Takes ENERGY!

• Lungs are sealed in airtight sacs

• The diaphragm, a smooth muscle located beneath the lungs, expands and contracts

• This puts pressure on the lungs and forces air in and out

## Diseases

• Smoking reduces life expectancy

• Bronchitis-constricting of bronchi

• Emphysema (loss of elasticity in tissue of lungs)

• Lung Cancer (easily spreads to other parts of the body) – 160,000 people diagnosed each year in US – Most die in 5 years