Respiratory System

Structures and Functions

The organs of the respiratory system include nose, pharynx, larynx, trachea, bronchi, and lungs (1 throat, 1 voice box)
The thorax and the diaphragm assist

The process of respiration (breathing) includes inspiration (inhalation) of O_2 and expiration (exhalation) of CO_2.

The Nose

Acts as an entrance for air and an exit for carbon dioxide

Ciliated epithelium lines the nose and much of the respiratory tract.

It severs as a filter for dust and other matter.

The nose warms and moistens airs.

In addition, there are olfactory lobes for a sense of smell.

The nostrils are paired external opening to the airways.

Some animals have expandable nostrils like a horse because it relies on these for breathing.

The Pharynx

The pharynx is also called the throat
The upper portion is attached to the skull.
The lower portion meets with the esophagus.

respiratory & digestive

The pharynx is divided into three parts

Nasopharynx (back of nose and Eustachian tubes)

Oropharynx (back of mouth
(Laryngopharynx (at the larynx and esophagus)

It is used by the respiratory and digestive systems

The Larynx

Also called the voice box.

Epiglottis- a lid-like cartilaginous structure.

It prevents foods from entering the airway during swallowing.

The epiglottis is important in sound in mammals.

Air passes over the glottis which causes a sound vibration.

The Trachea

It is the windpipe

It is tube that is made of smooth muscle with C-shaped rings of cartilage

The rings prevent collapse

The Bronchi

The lower end of the trachea separates into smaller airways called the right and left primary bronchi

Each of the bronchi enter a lung

Primary bronchi

Secondary bronchi

Bronchioles

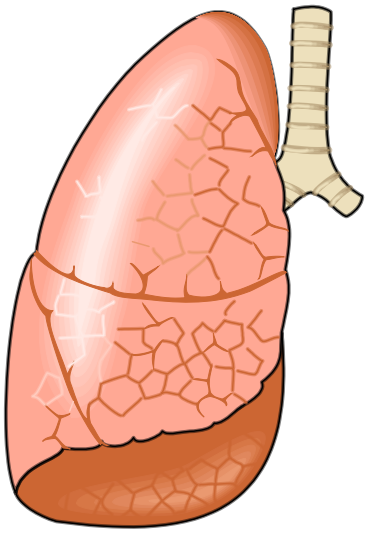
Alveolar Ducts, which contain alveolar sacs

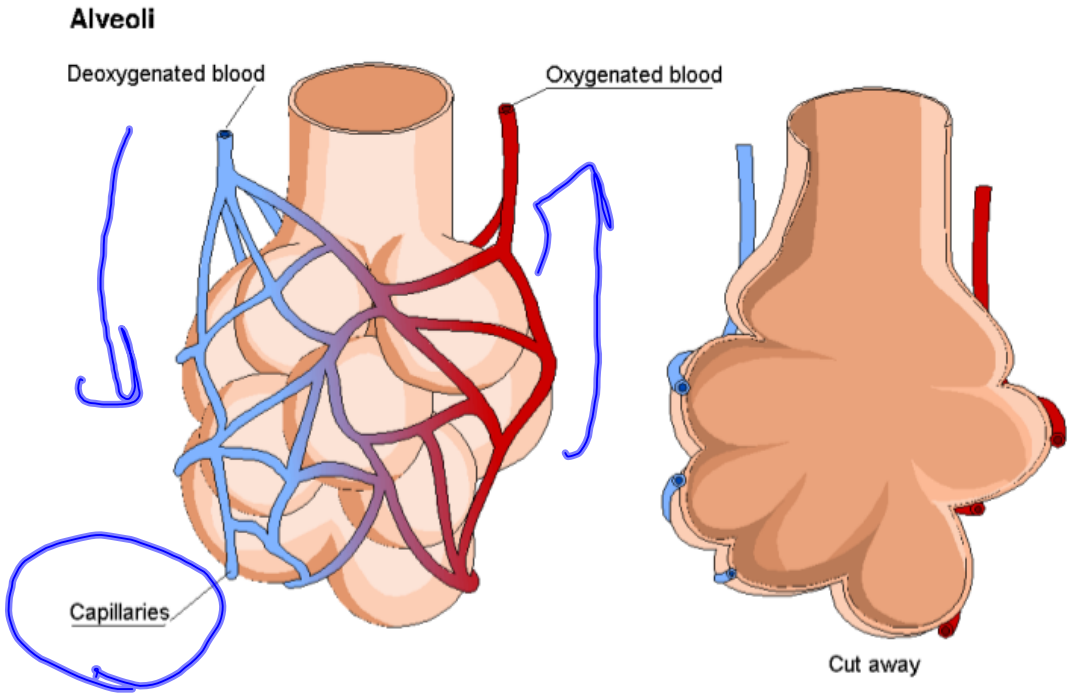
Small

Alveoli- minute, squamous, epithelium-lined spaces

The lungs are the primary structures of the respiratory system

Each lungs contains millions of alveoli (300 million in a pair of human lungs)





Visceral Pleura- a membranous sacs that surrounds the lungs
The thoracic cavity has a partial pleura so that space between the two is called the pleural cavity.

The Thorax

This is divided into three parts: left pleura cavity, right pleural cavity, and mediastinum.

The Diaphragm

This is dome-shaped muscle that separate the thorax and abdomen

It attaches to the lumbar vertebrae, lower ribs, and sternum.

Put together guys.

The Process of Respiration

Inspiration
Expiration
Rest

This involves oxygen and carbon dioxide moving through the body.
The amount of oxygen depends on what the body needs.
Tissues do not store oxygen.

The flow of air into and out of the lungs depends on the capacity of the thoracic cavity.

Tidal Volume (TV)- the volume of air inspired or expired during ordinary respiration

Inspiratory reserve volume (IRV) - the maximum volume of air that can forcible inspired in addition to tidal air

Expiatory reserve volume (ERV)- the volume of air that can be forcibly expelled in addition to tidal air

Residual volume (RV)- the volume of air trapped I the alveoli

Minimal volume (MV)- the small amount of air that is left after a total lung collapse

Vital Capacity (VC)- the largest volume of air that can be moved in and out of the lungs. This is the sum of the IRV, ERV, and TV.

The brain controls the movement of respiration.
Nerves send these signals

Vagus- larynx, heart, bronchi, esophagus, stomach, liver and abdomen
Phrenic- diaphragm
Thoracic- to the muscles of the thorax