

# Respiratory System

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**Grade 1 Course Name : Human Anatomy**

**Spring Semester**

**Week No.2**

# Outlines



- Respiratory system anatomy
- Functions of respiratory system
- Upper Respiratory Tract
- Lower Respiratory Tract

# Definition

The respiratory system, also called the pulmonary system, consists of several organs that function as a whole to oxygenate the body through the process of respiration (breathing).

# Functions of the Respiratory System

- 1. Gas Exchange (Oxygen and Carbon Dioxide):** The primary function of the respiratory system is to supply oxygen ( $O_2$ ) to the blood and remove carbon dioxide ( $CO_2$ ), a waste product of metabolism.
- 2. Regulation of Blood pH.** The respiratory system helps regulate the pH of blood by controlling the levels of carbonic acid ( $H_2CO_3$ ) in the body.

# Functions of the Respiratory System

## **3. Protection from Inhaled Pathogens and Particles**

The respiratory system has defense mechanisms, including mucus production and cilia in the respiratory tract, which trap dust, pathogens, and other foreign particles.

## **4. Vocalization (Speech)**

The respiratory system, specifically the lungs, vocal cords, and air passages, is involved in producing sound for speech.

# Functions of the Respiratory System

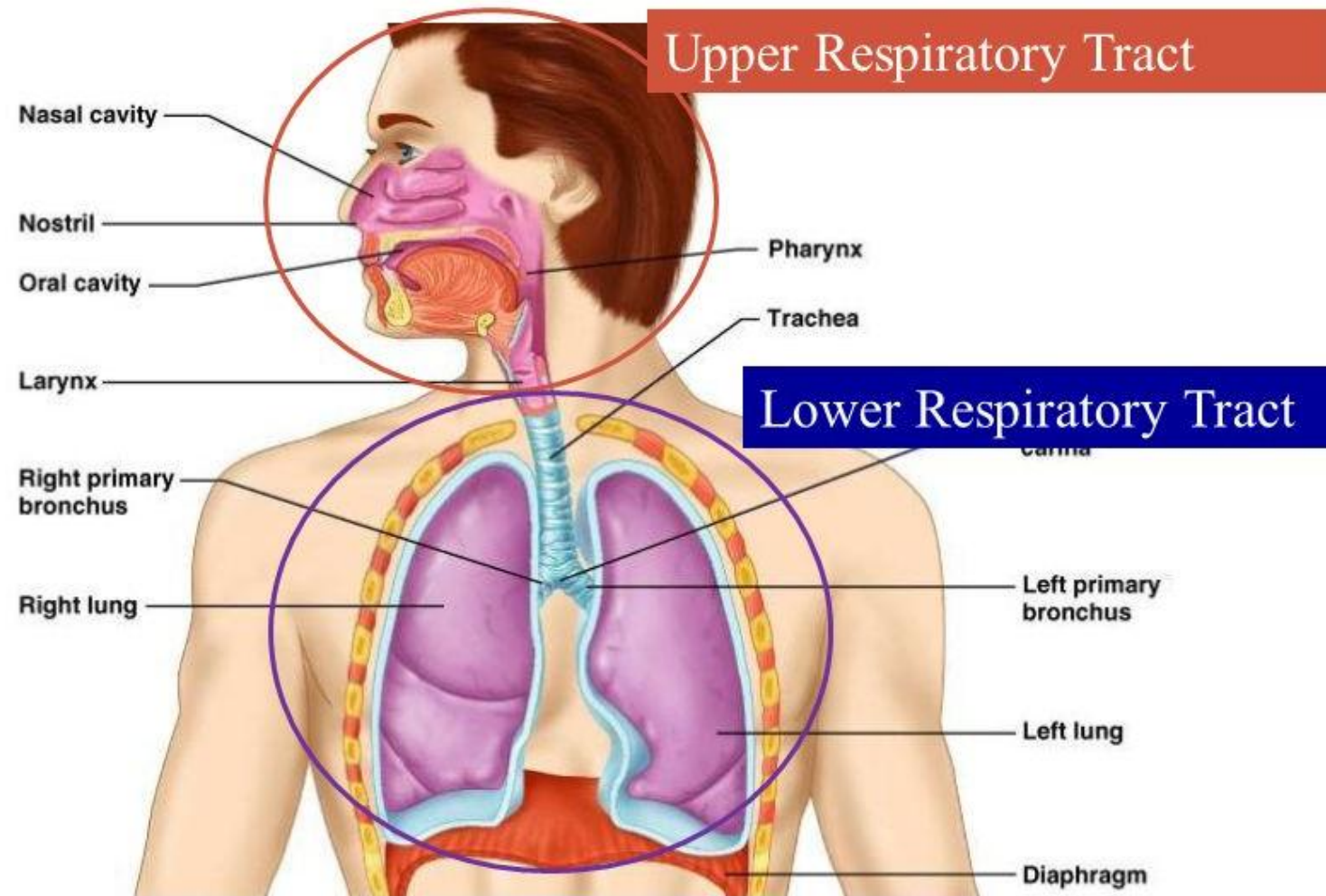
## **5. Thermoregulation**

The respiratory system helps maintain body temperature by warming or cooling the air that enters the body.

## **6. Olfaction (Sense of Smell)**

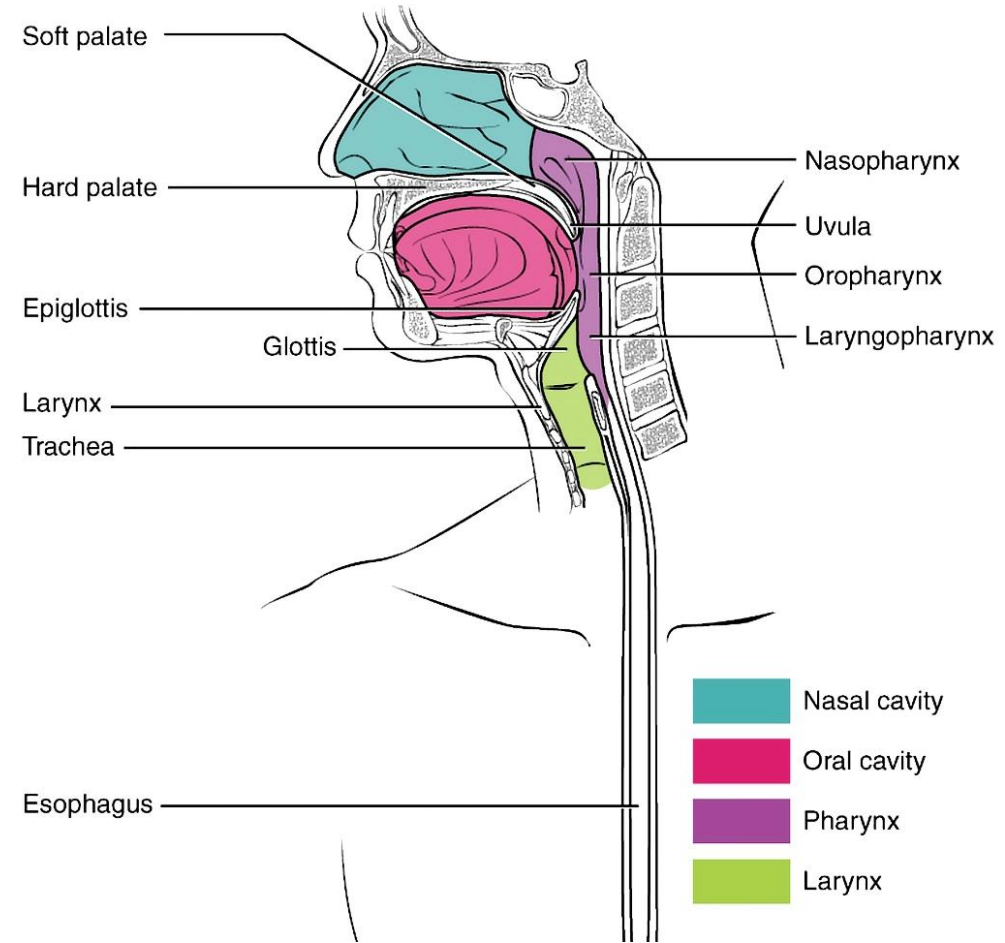
The nasal cavity, part of the upper respiratory tract, contains olfactory receptors that detect smells..

# Divisions of the Respiratory System



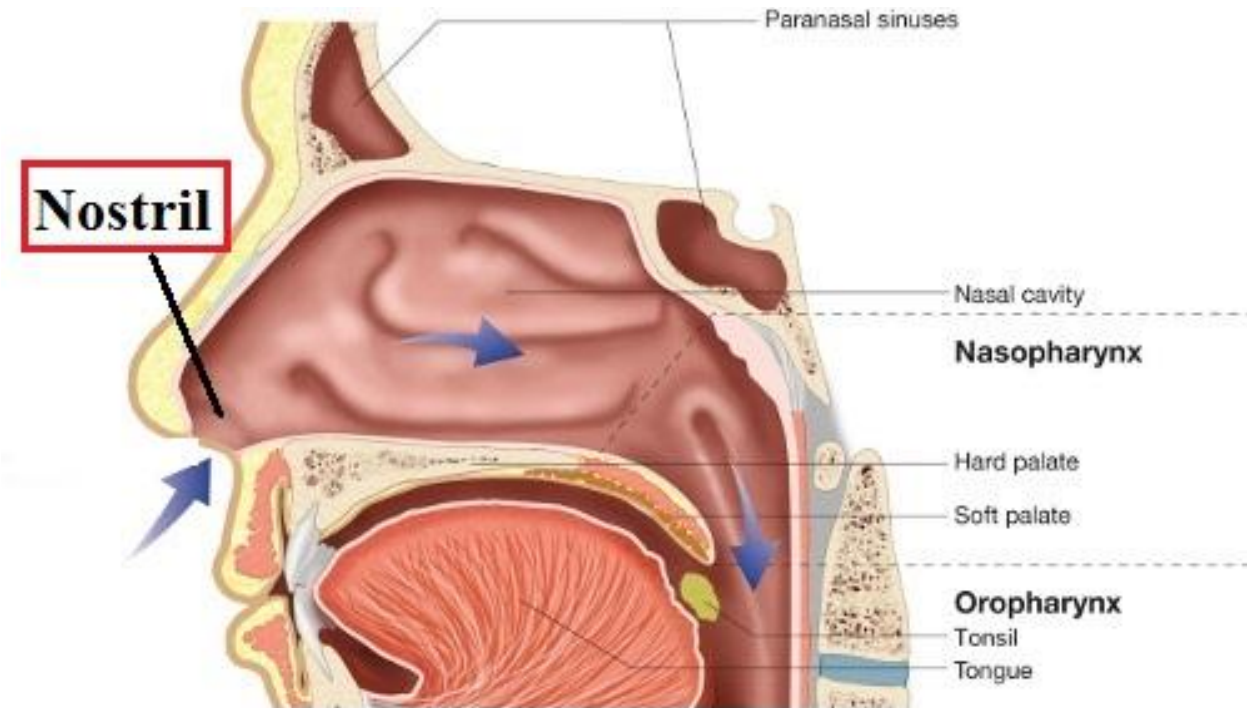
# Upper Respiratory tract

The major passages and structures of the upper respiratory tract include the **nose or nostrils, nasal cavity, mouth, throat (pharynx), and voice box (larynx).**



# Upper Respiratory tract

The upper respiratory tract refers to the parts of the respiratory system that lie outside the thorax, more specifically above the cricoid cartilage and vocal cords

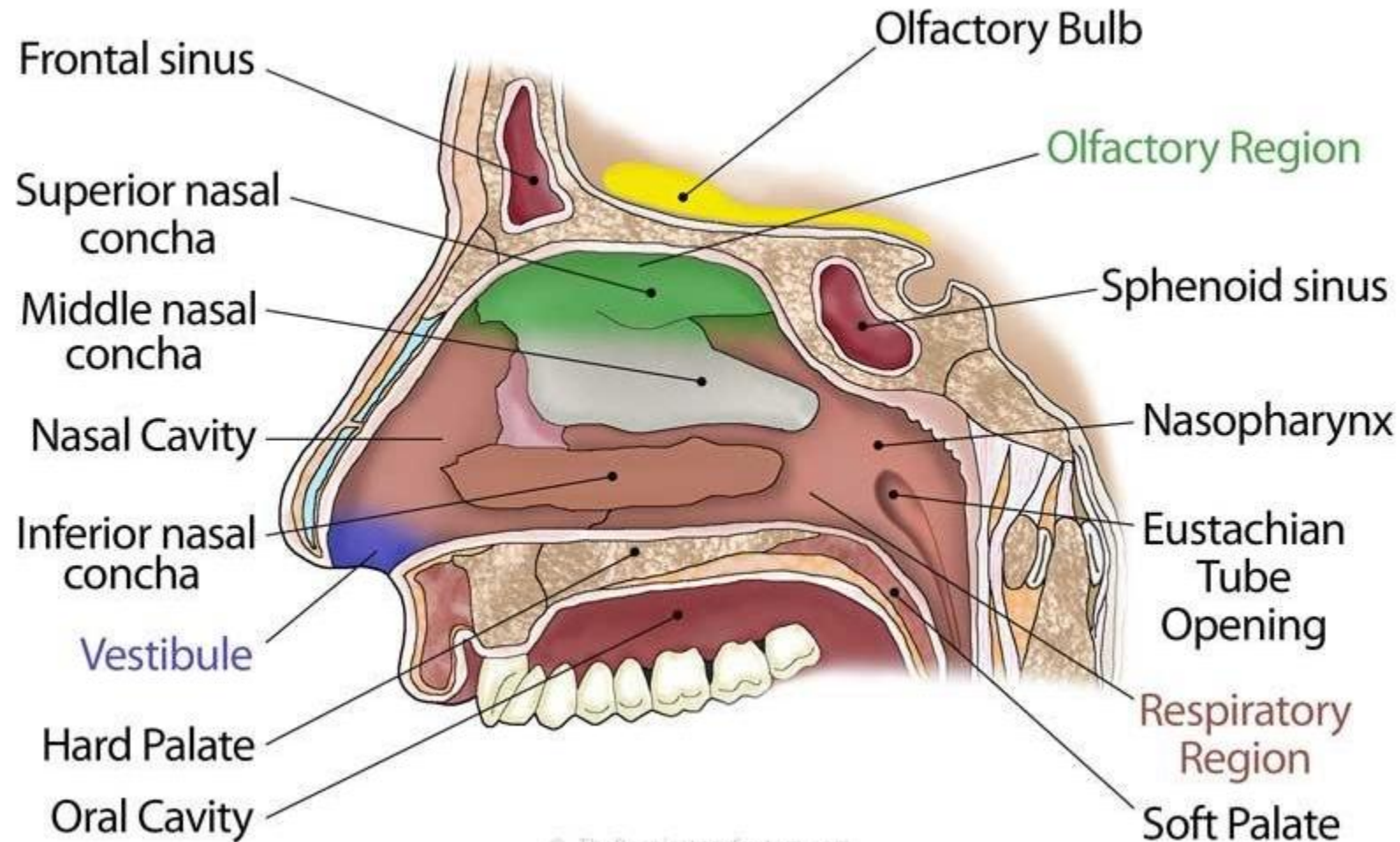


# Nasal Cavity

The nasal cavity is a large, **air-filled space above and behind the nose in the middle** of the face.

The nasal septum divides the cavity into two cavities, also known as **fossae**. Each nasal cavity is the continuation of one of the two **nostrils**.

# Nasal Cavity

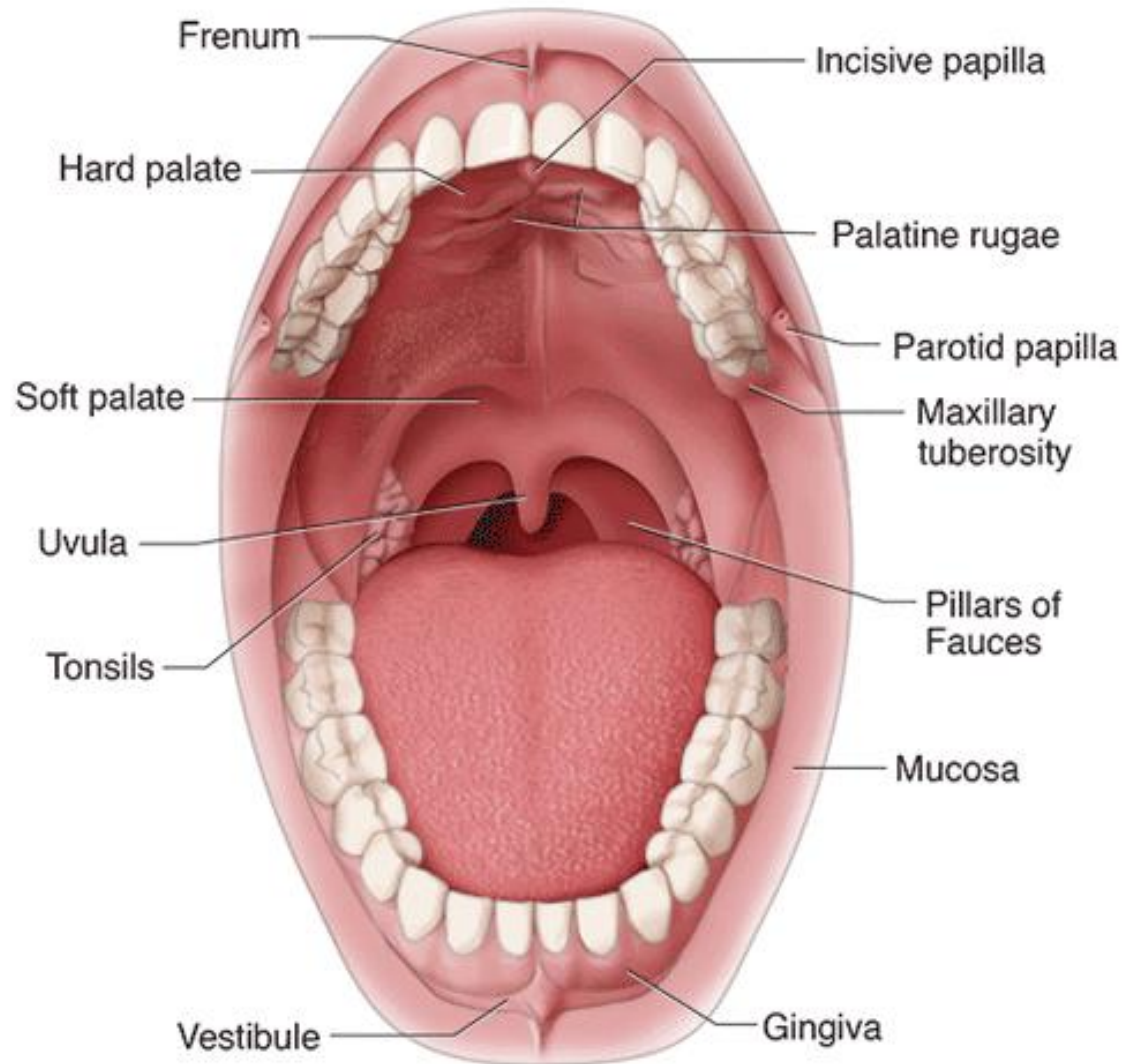


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## The nasal cavity functions

1. Allows air to enter your body.
2. Contributes to how you look and how you sound when you speak.
3. Filters and cleans air to remove particles and allergens.
4. Provides a sense of smell.
5. Warms and moistens air so it can move comfortably into your respiratory system.

# Mouth (Oral Cavity)



# Pharynx



The throat (pharynx) is a muscular tube that runs from the back of your nose down into your neck. It connects the **mouth and nose** to the **esophagus** (leading to the stomach) and **larynx** (leading to the trachea and then lungs).

# Pharynx

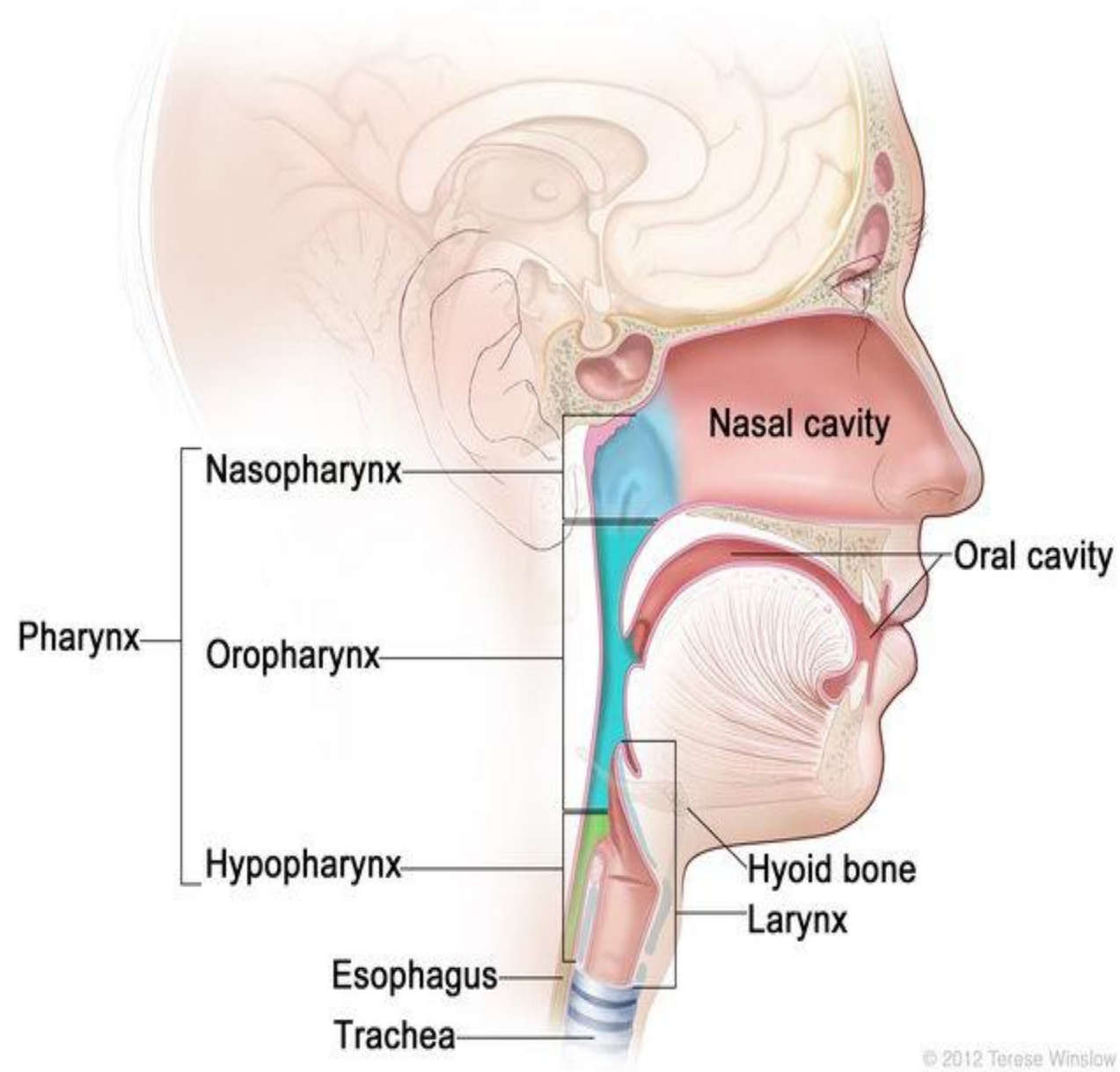
Sections of Pharynx ;

1. Nasopharynx

2. Oropharynx

3. Laryngopharynx, Which Is Also Called The  
Hypopharynx

# Pharynx



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# Pharynx

## Function

The pharynx, usually called the throat, is part of the respiratory system and digestive system. It carries air, food and fluid down from the nose and mouth.

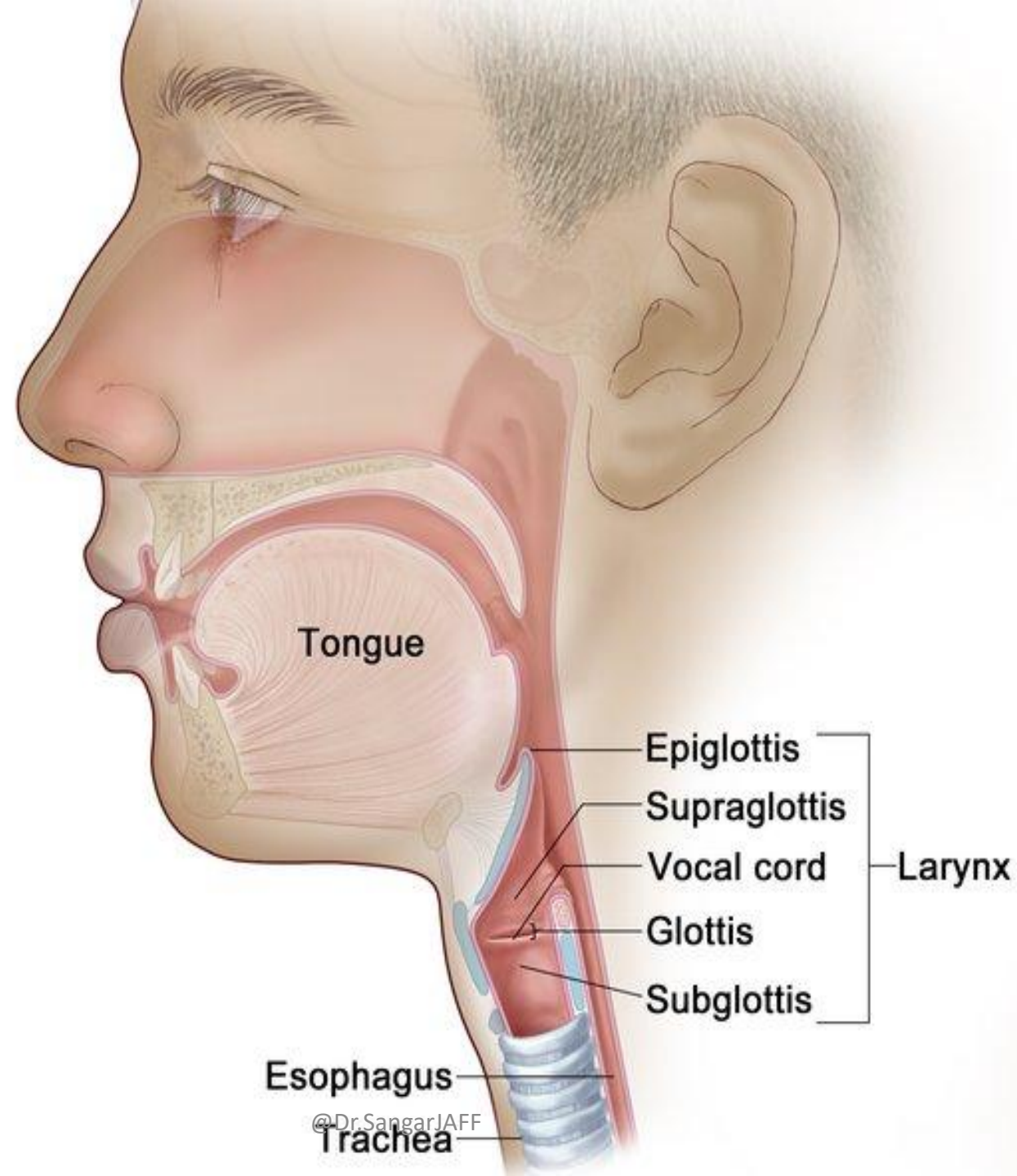


# Larynx

The larynx is a cartilaginous segment of the respiratory tract located in the anterior aspect of the neck.

The primary function of the larynx in humans and other vertebrates is to protect the lower respiratory tract from aspirating food into the trachea while breathing.

# Larynx

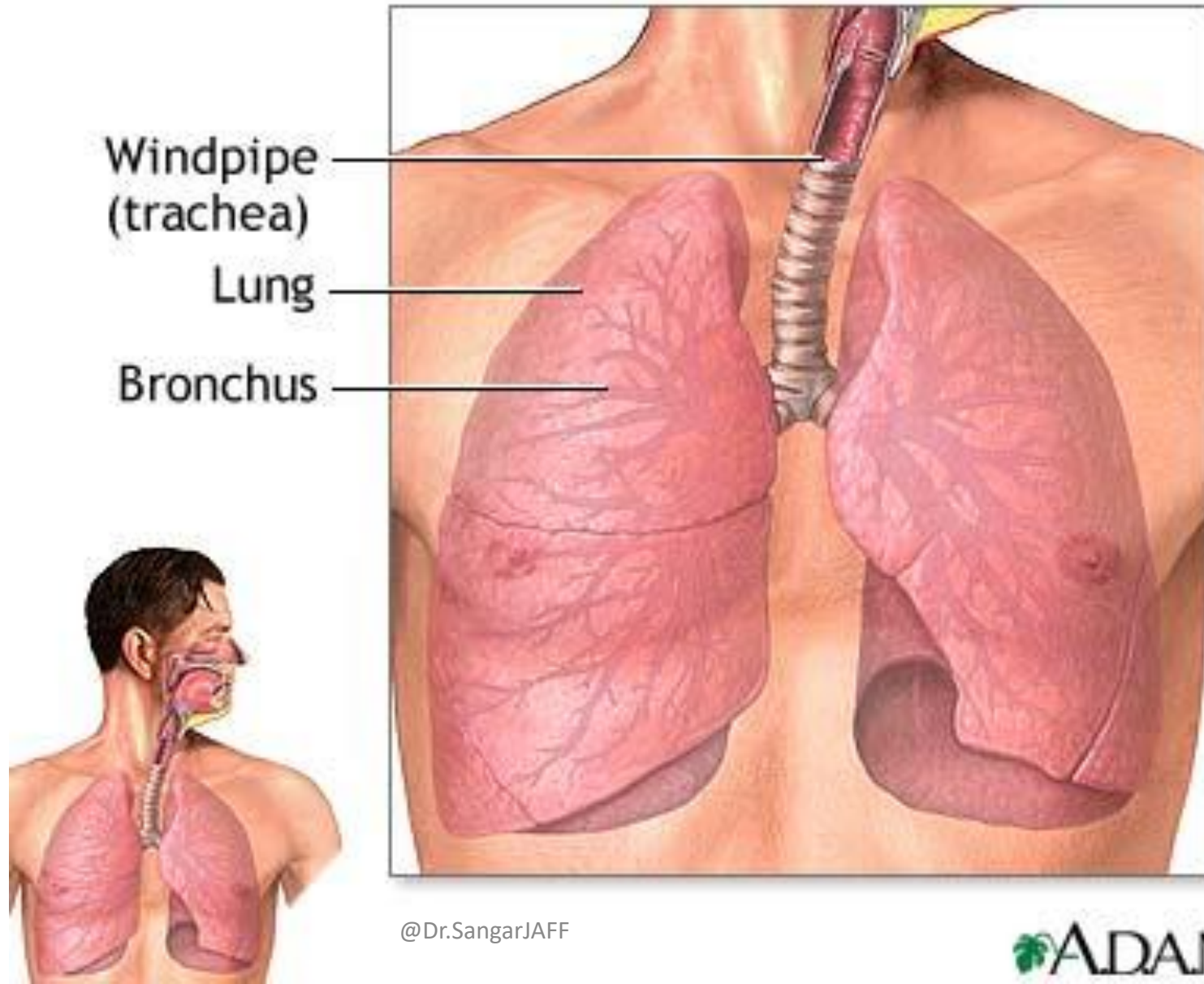


# Lower Respiratory tract



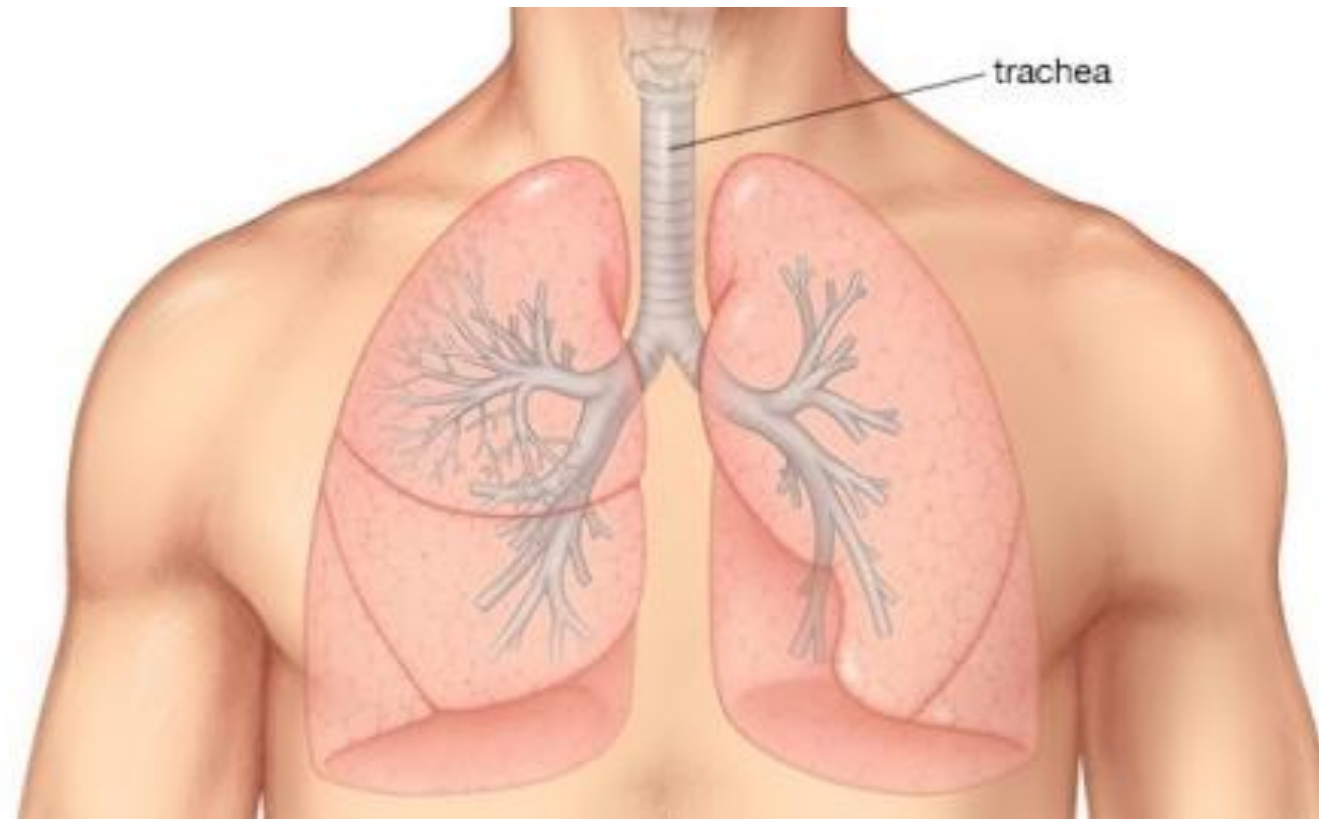
The lower respiratory tract refers to the parts of the respiratory system that lie below the cricoid cartilage and vocal cords, including the inferior part of the larynx, tracheobronchial tree and lungs.

# Lower Respiratory tract

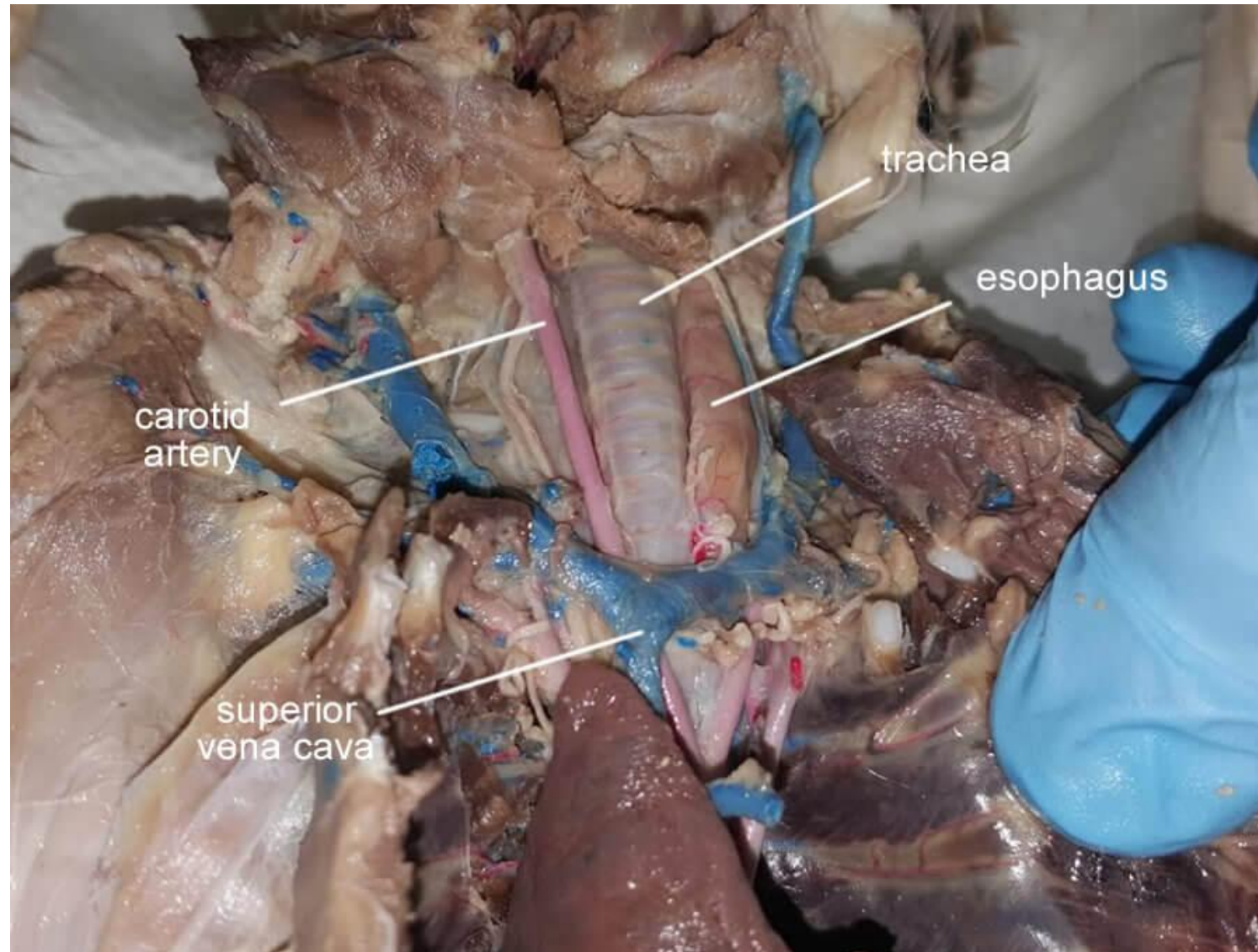


# Trachea

Trachea: Located just below the larynx, the trachea is the main airway to the lungs.



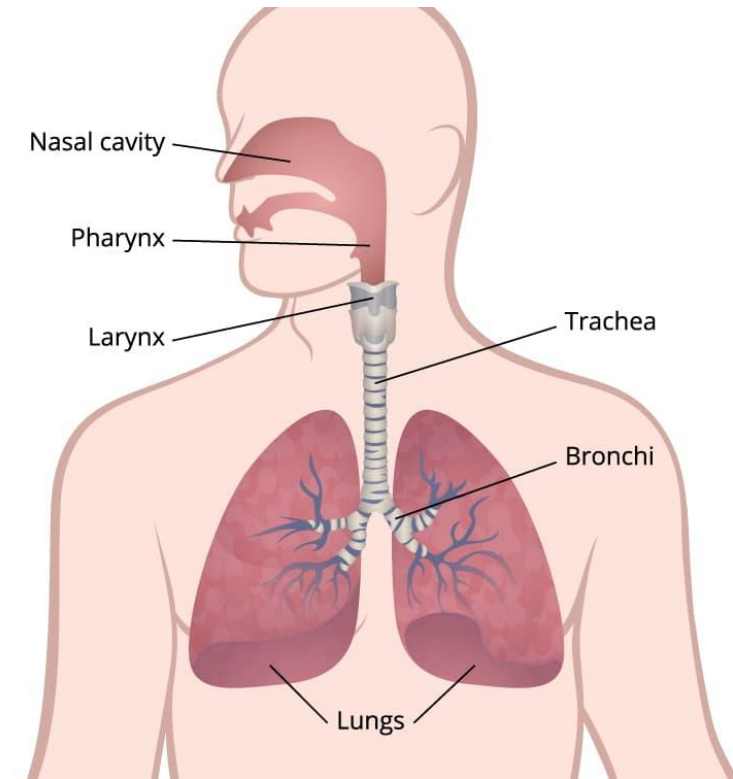
# Trachea



# Lungs

Lungs: Together the lungs form one of the body's largest organs.

They're responsible for providing oxygen to capillaries and exhaling carbon dioxide.

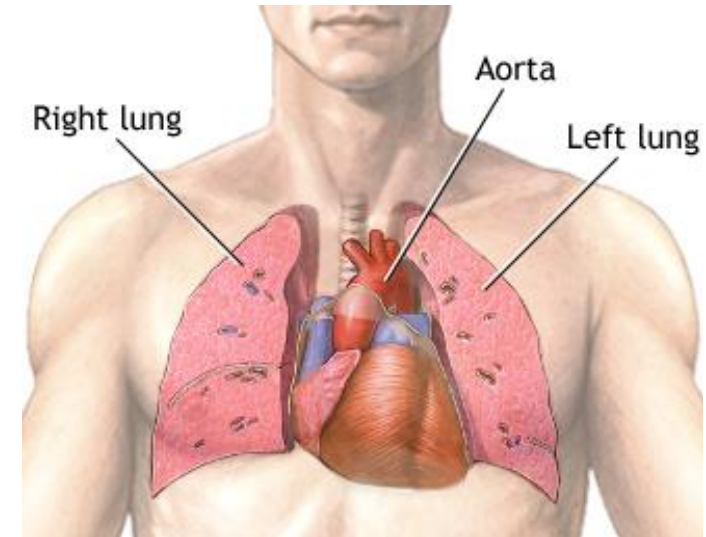


# Lungs

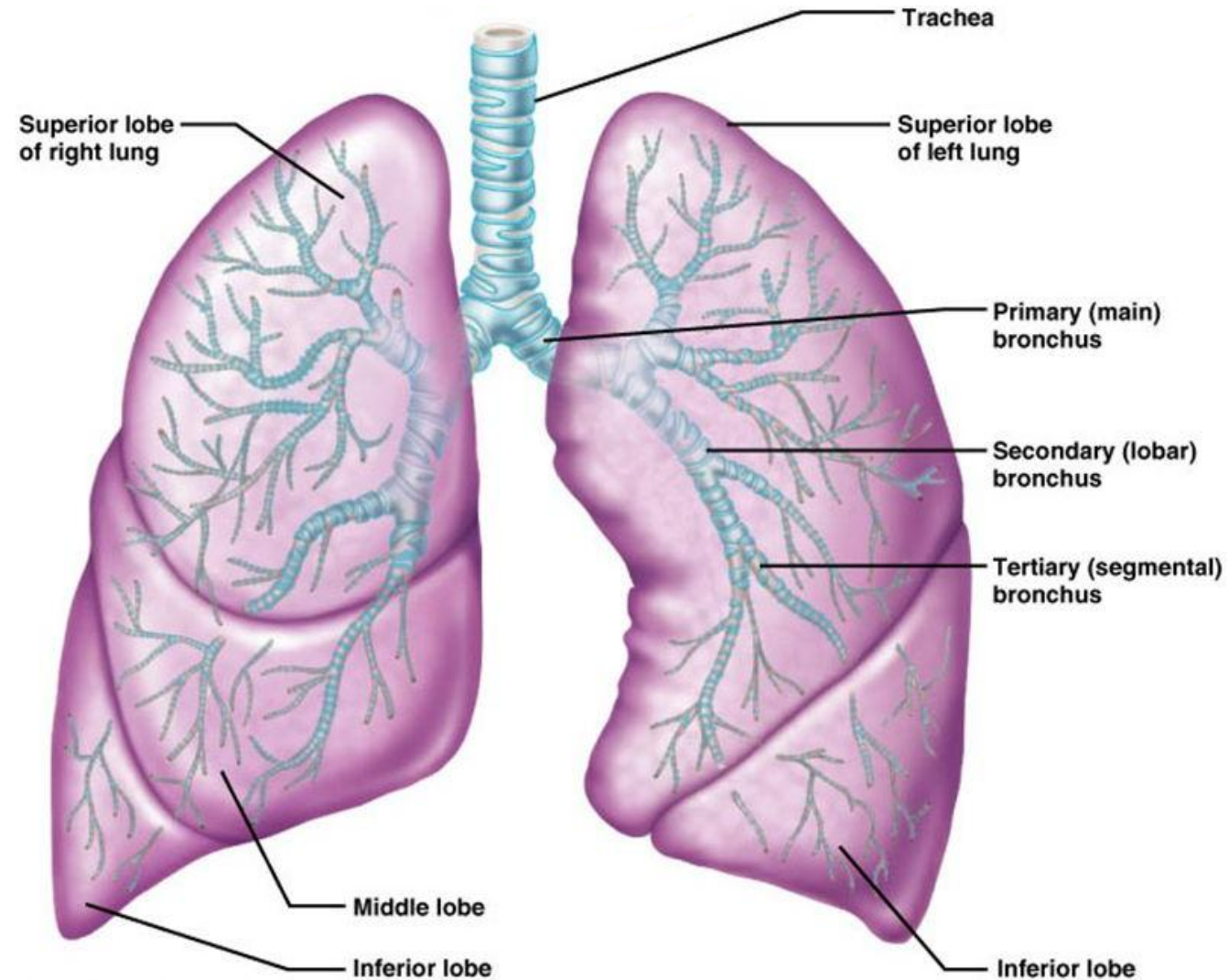


The right lung is **larger** and **weighs** more than the left lung.

Since the heart tilts to the left, the **left lung** is **smaller than the right** and has an indentation called the **cardiac impression** to accommodate the heart.



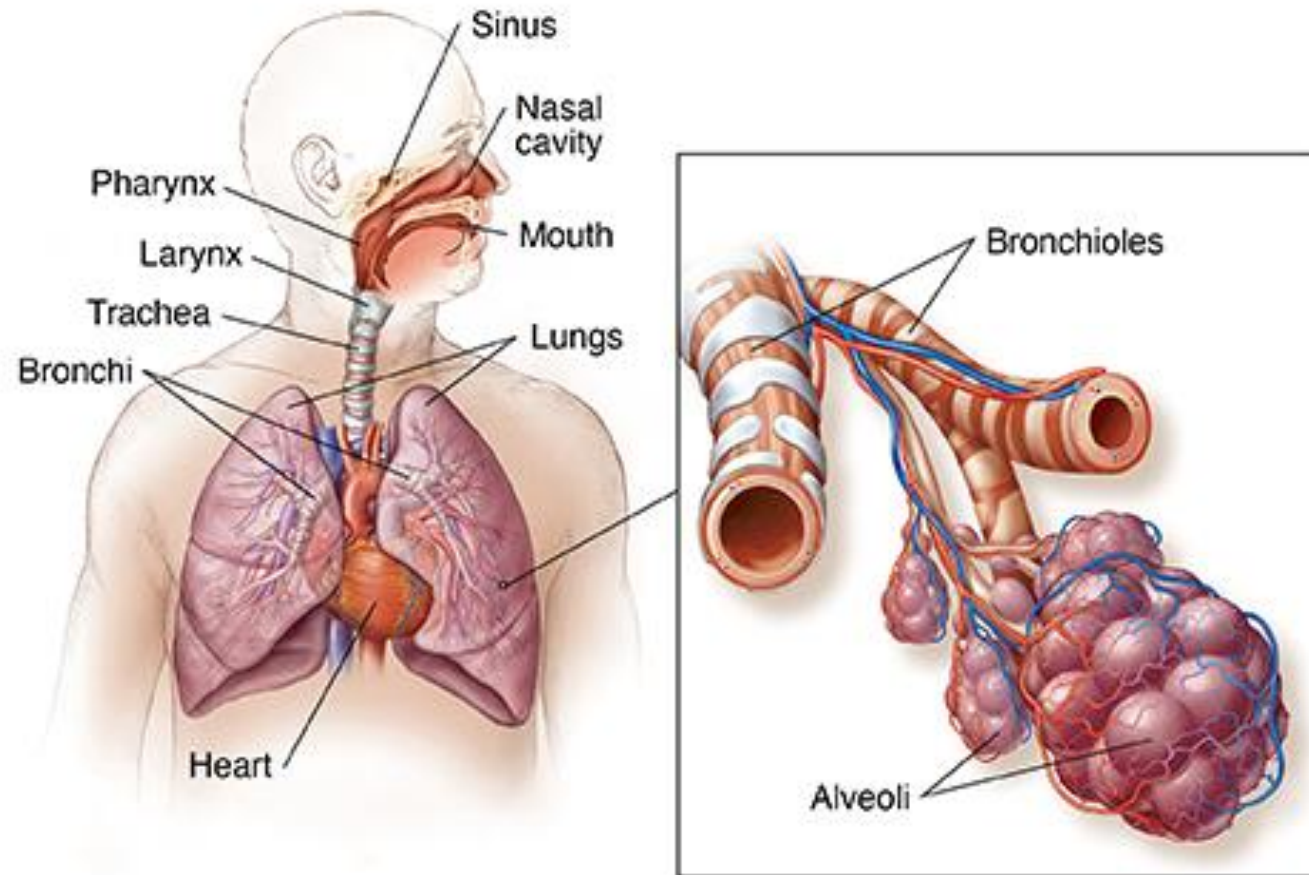
# Lungs



# Bronchi



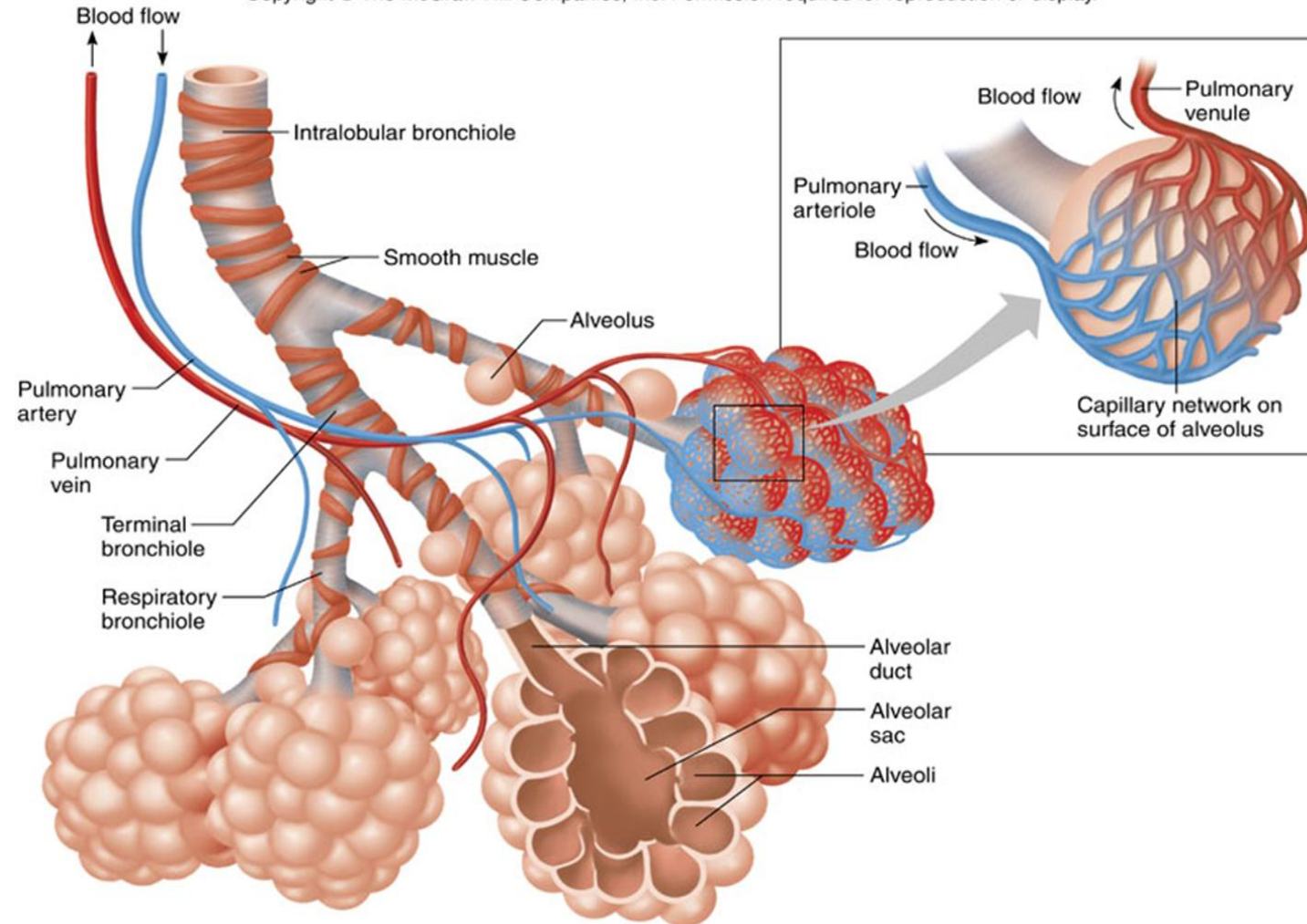
The bronchi branch from the trachea into each lung and create the network of intricate passages that supply the lungs with air.



# Bronchi



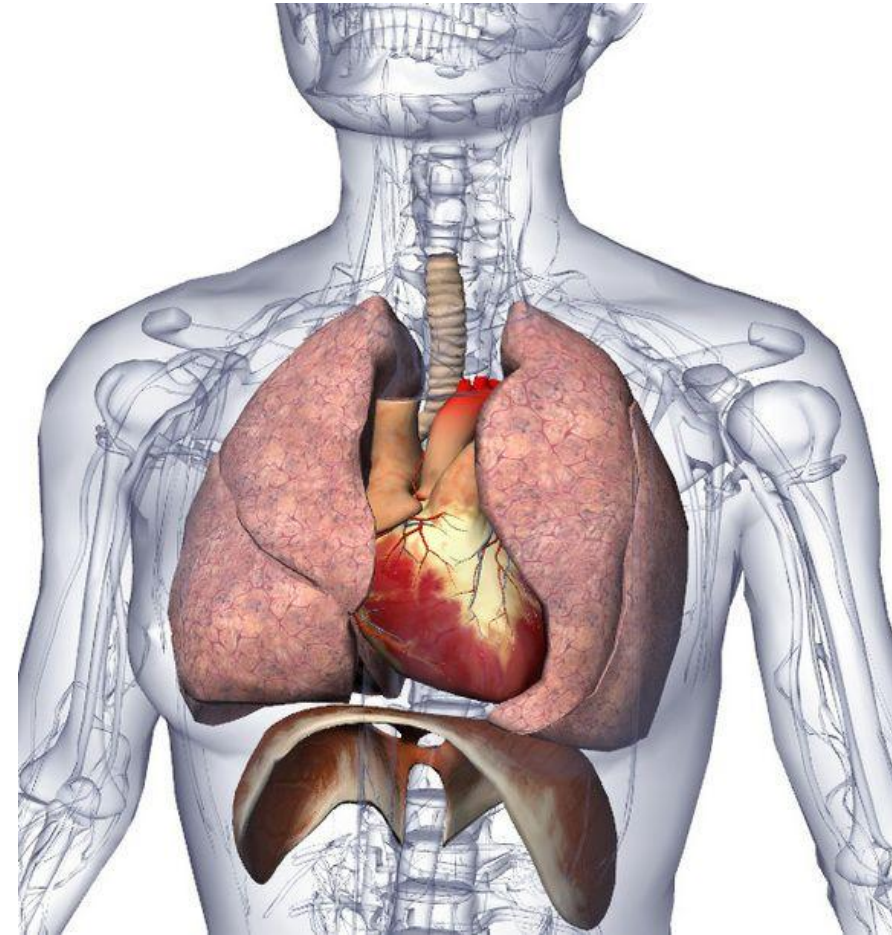
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# Diaphragm



The diaphragm is the main respiratory muscle that contracts and relaxes to allow air into the lungs.



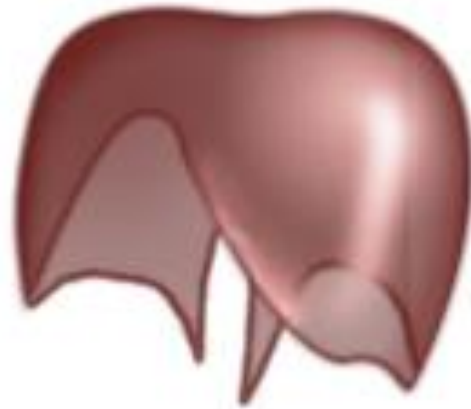
# Diaphragm



The diaphragm is a thin skeletal muscle that sits at the base of the chest and separates the abdomen from the chest.

It contracts and flattens when you inhale. This creates a vacuum effect that pulls air into the lungs. When you exhale, the diaphragm relaxes and the air is pushed out of lungs.

# Diaphragm



The diaphragm  
is shaped  
like a parachute

