
# RESPIRATORY SYSTEM

# Outline

- Basic organization of the body
- Body Regions
- Body Cavities
- Body Quadrants
- The basic body systems and sciences that deal with them
- The Integument/ The skin
- Fasciae
- Bones
- Cartilage
- Ligaments
- Joints\
- Muscles

# Respiratory system

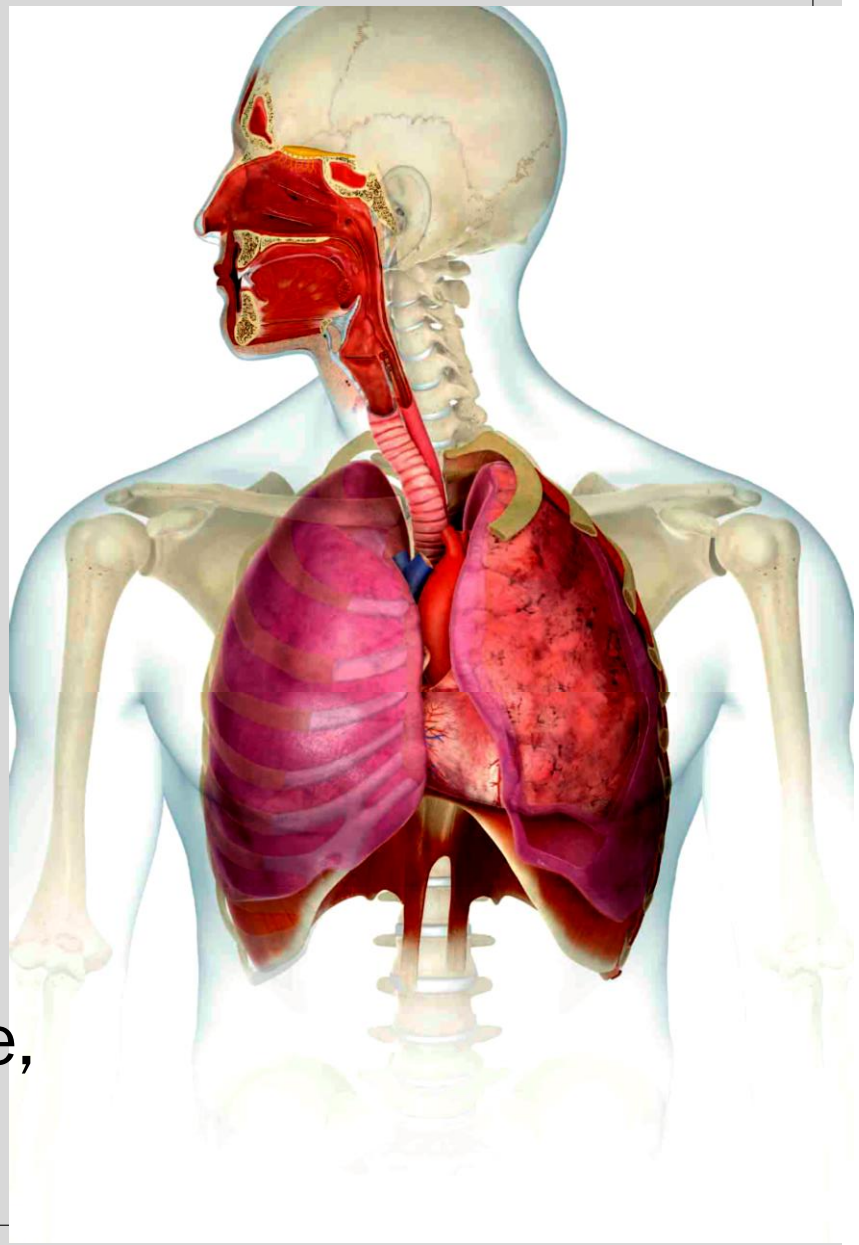
- Consists of **upper and lower parts:**

1. **The upper respiratory**

   include: nose, nasal cavity, laryngopharynx and larynx.

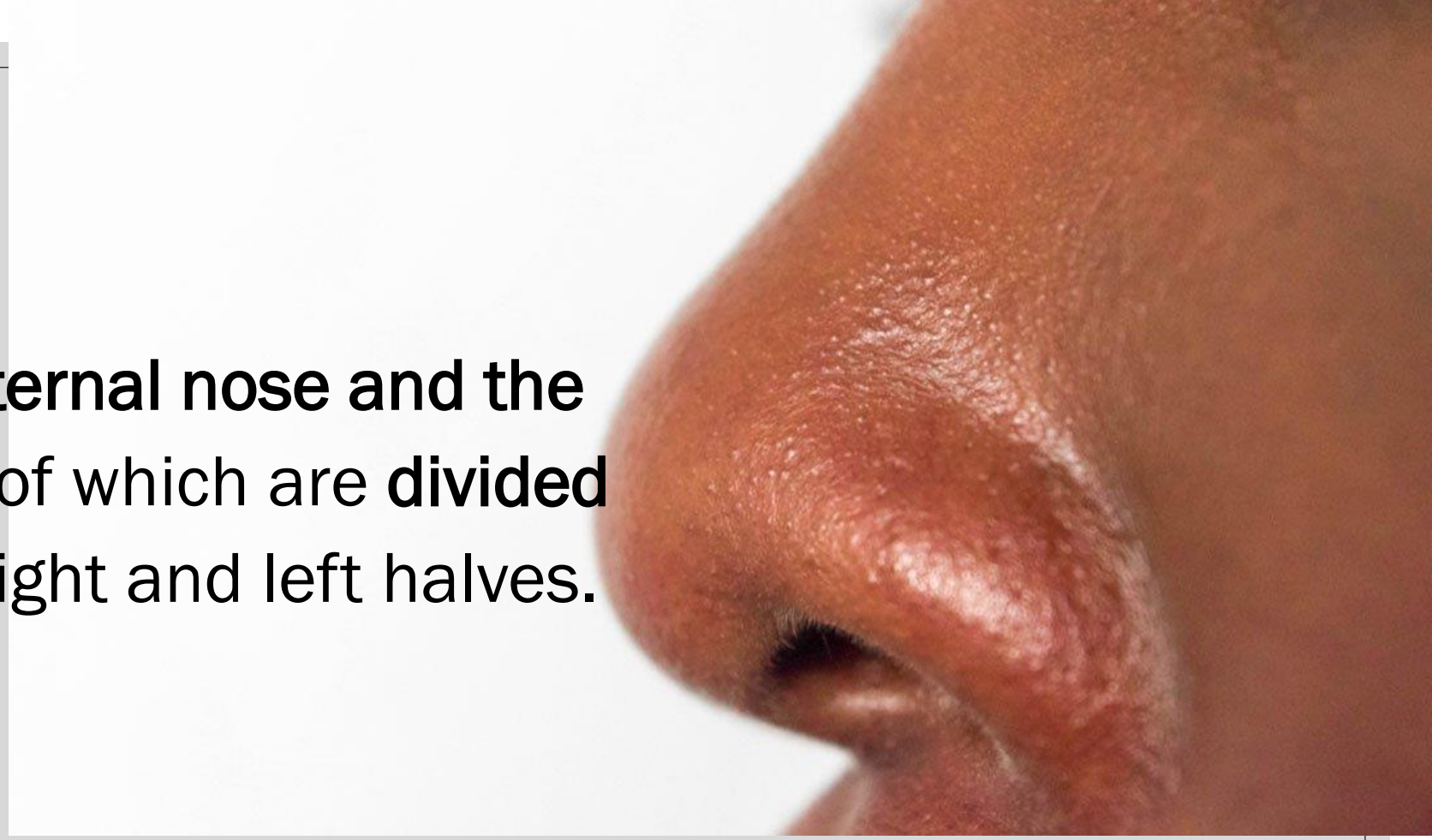
2. **The lower respiratory**

   include: the trachea, bronchi, bronchial tree, and the lungs.



# The nose

- Consists of the **external nose and the nasal cavity**, both of which are **divided by a septum** into right and left halves.



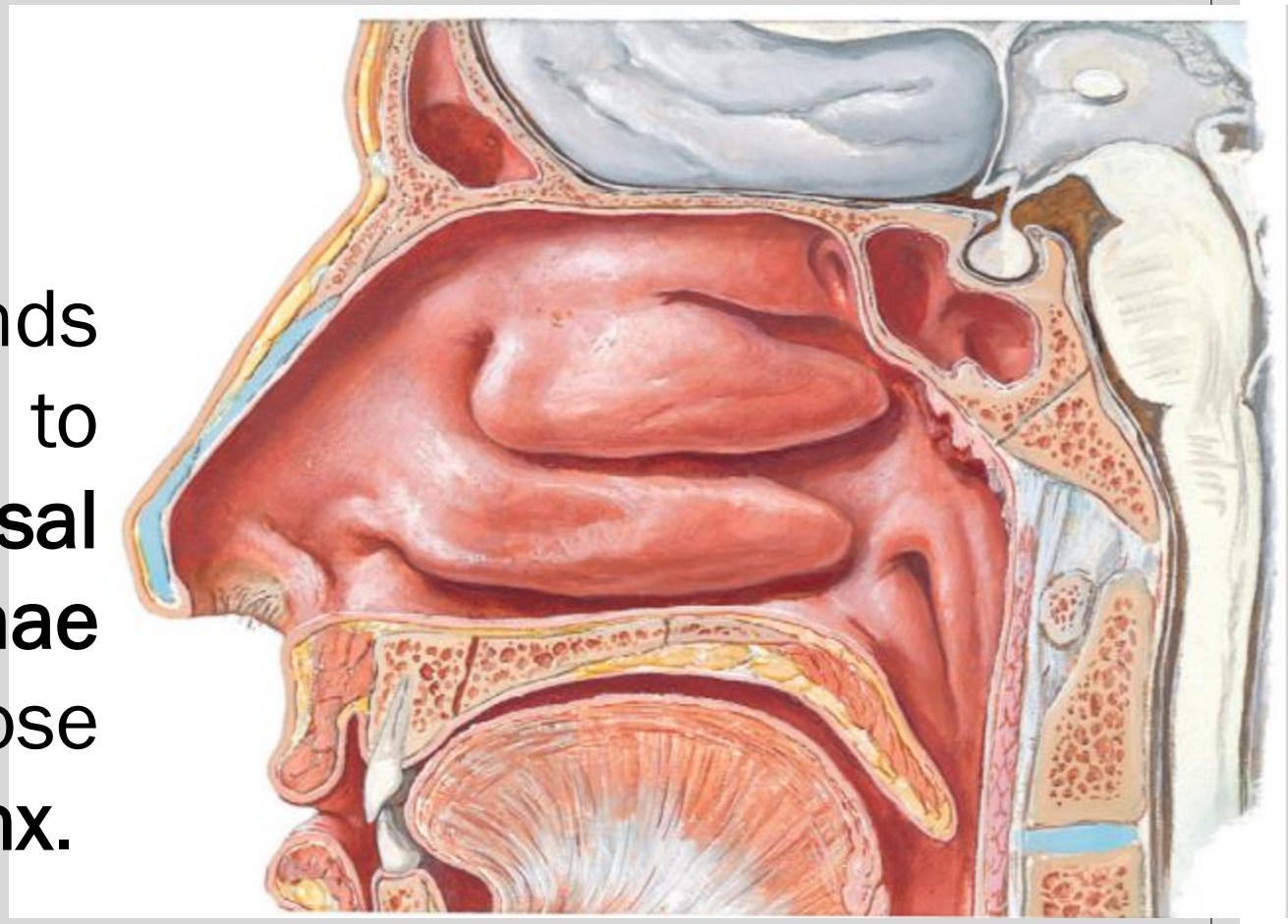
1. **External Nose**

   The external nose has two elliptical orifices called the **nostrils, The lateral margin, the ala nasi, is** rounded and mobile.

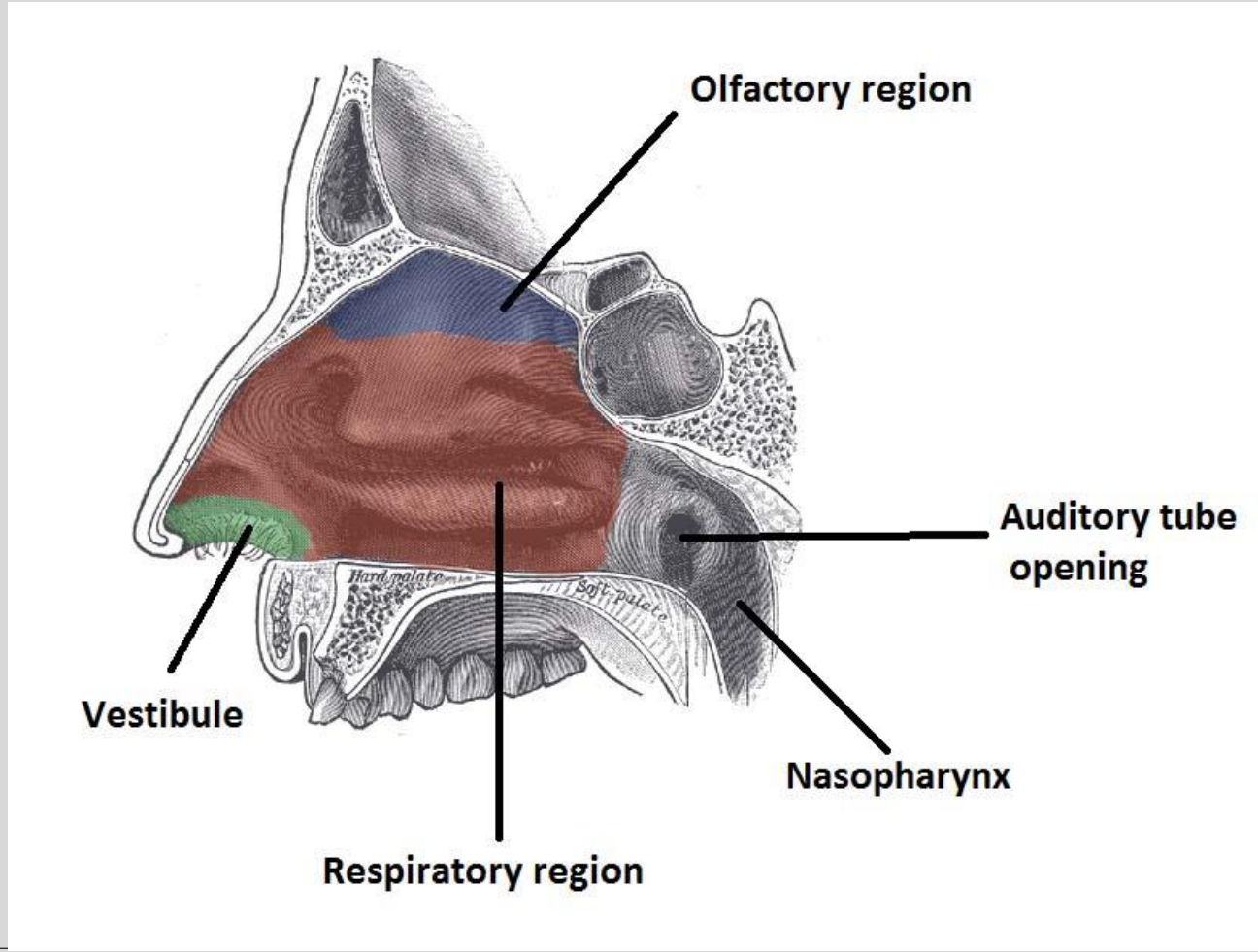
# The nose

## 2. Nasal Cavity

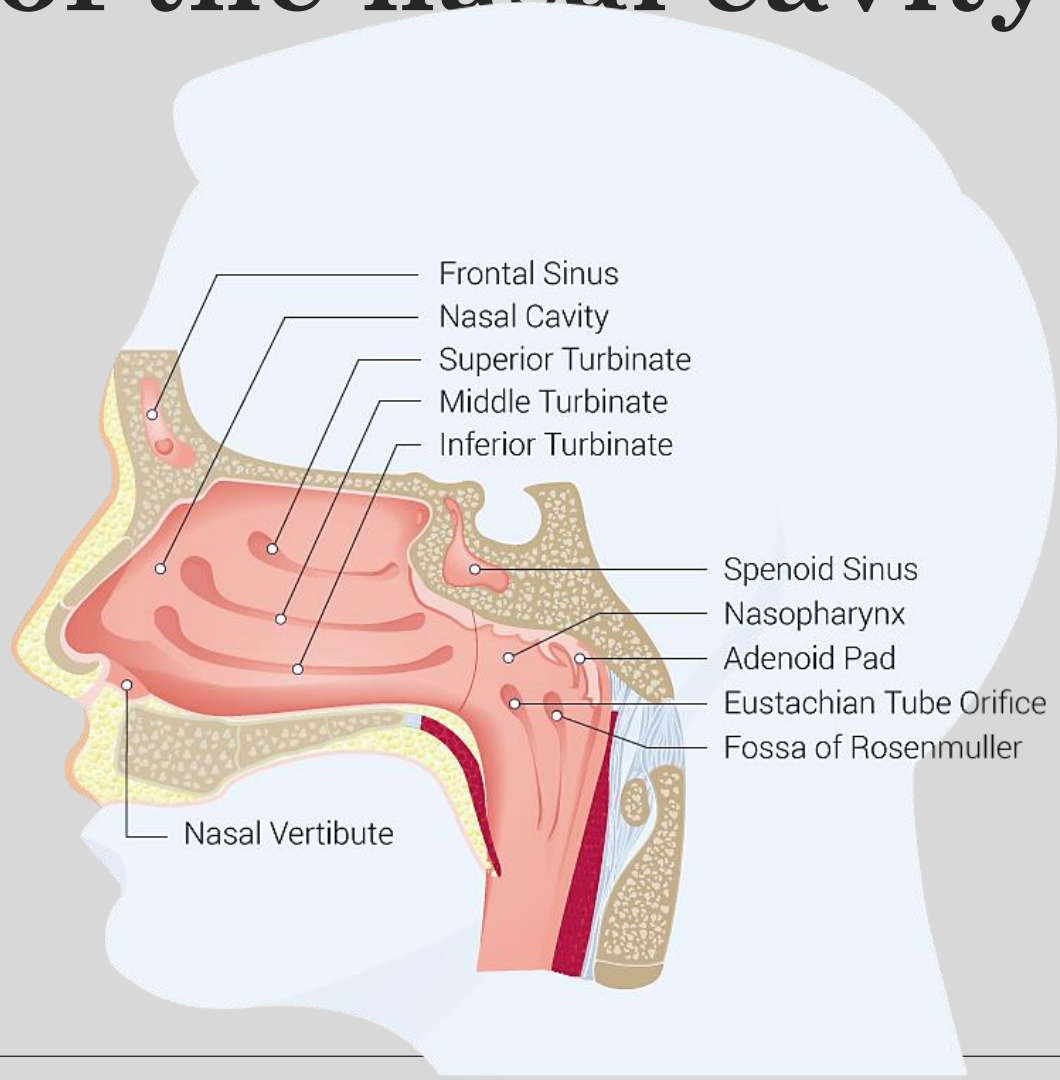
The nasal cavity extends **from the nostrils** in front, to the **posterior nasal apertures** or **choanae** behind, where the nose opens into the **nasopharynx.**



# Regions of the nasal cavity



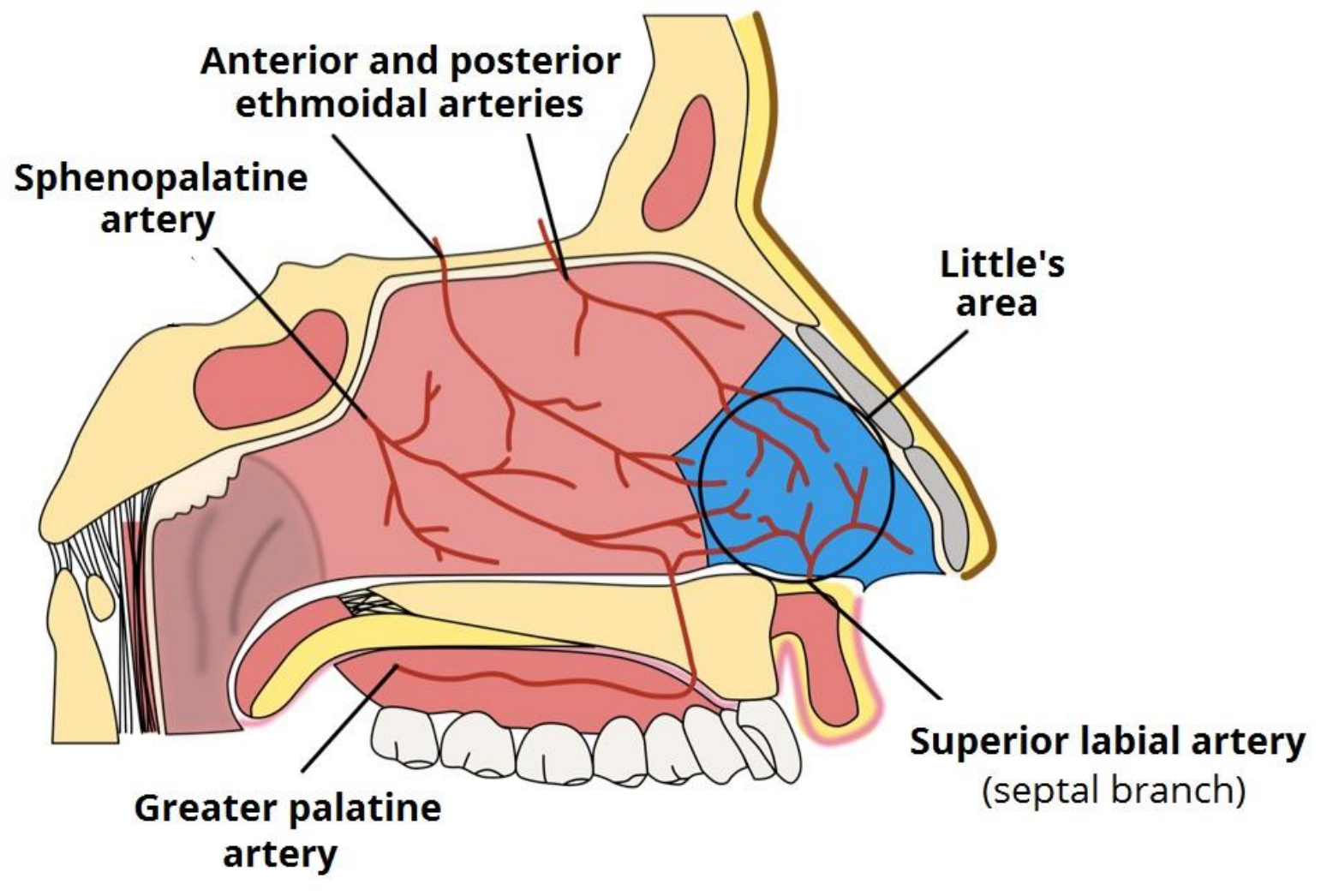
# Regions of the nasal cavity



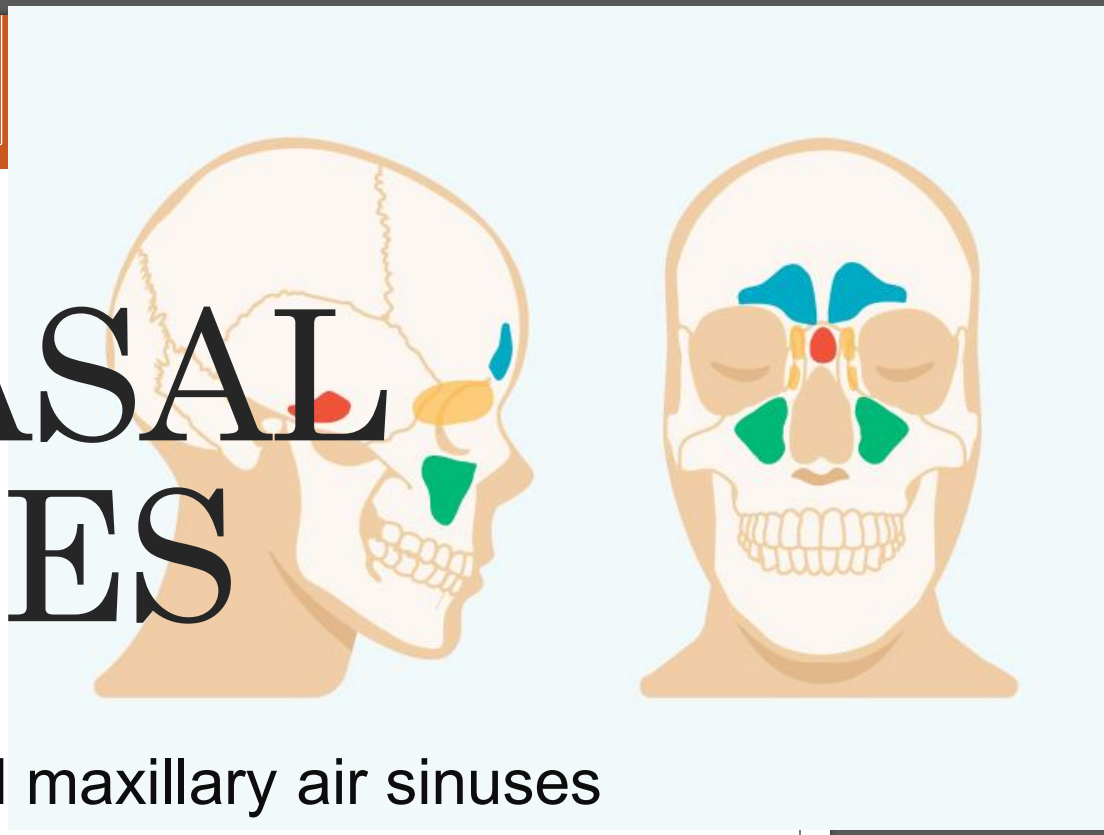
# Clinical notes in nasal cavity

- Epistaxis
- Rhinorrhea
- Rhinitis

# Little's (Kiesselbach's) area



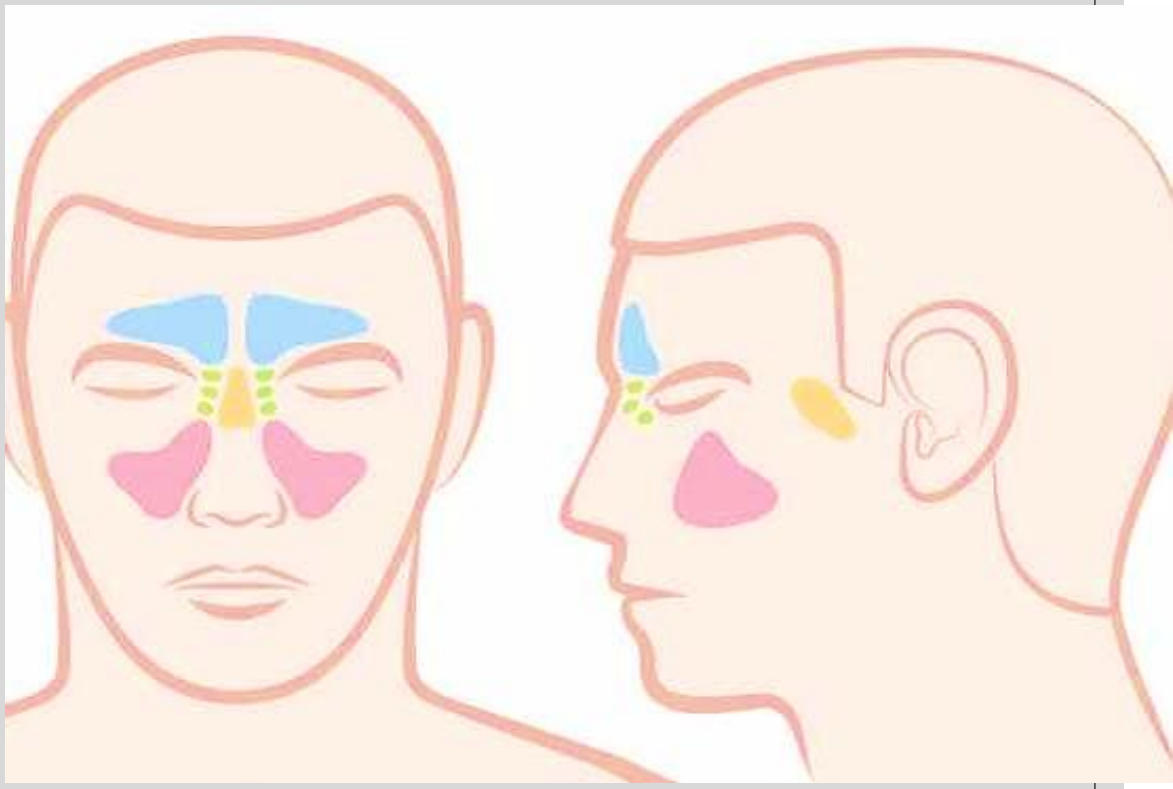
# PARANASAL SINUSES



frontal, ethmoidal, sphenoidal and maxillary air sinuses

# Paranasal sinuses

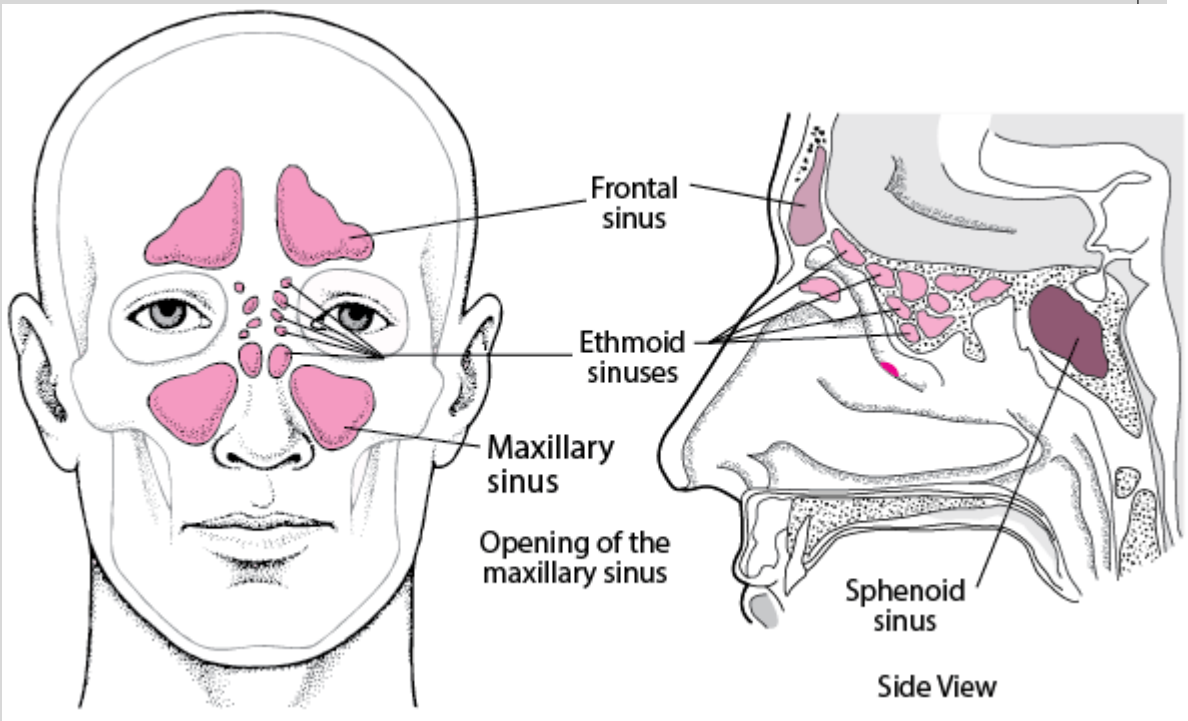
**Air cavities** located in the bones of skull around the nose and open in the lateral wall of the nasal cavity.



# Paranasal sinuses

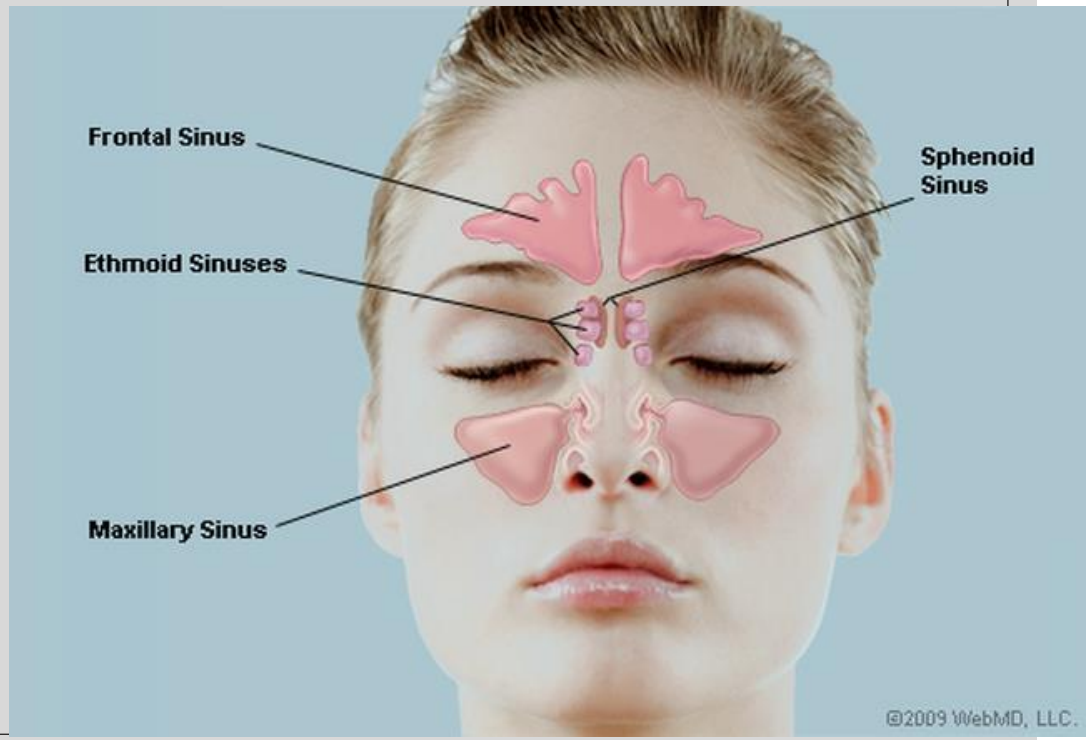
- They include:

1. Frontal,
2. Ethmoidal,
3. Sphenoidal,
4. And maxillary air sinuses.



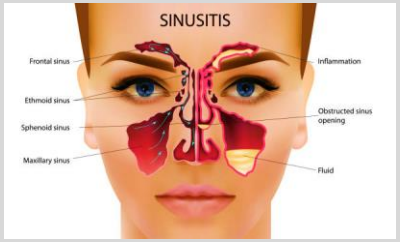
# Paranasal sinuses

- Humidifying and warming inspired air.
- Regulation of intranasal pressure.
- Increasing surface area for olfaction.
- Lightening the skull.
- Resonance.
- Absorption shock.
- Contribute to facial growth.

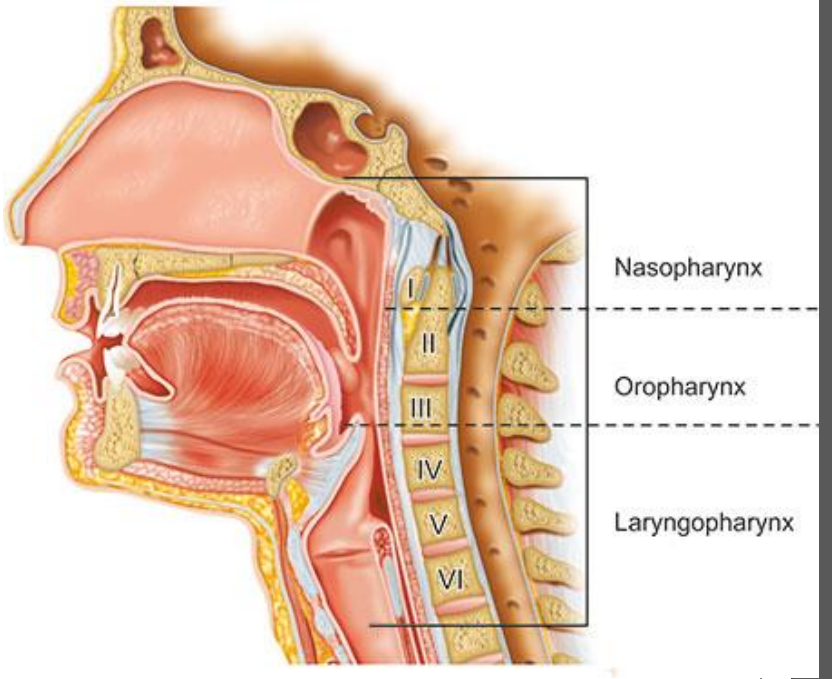


# Clinical notes in pranasal sinuses

## Sinusitis



# THE PHARYNX




Parts of pharynx

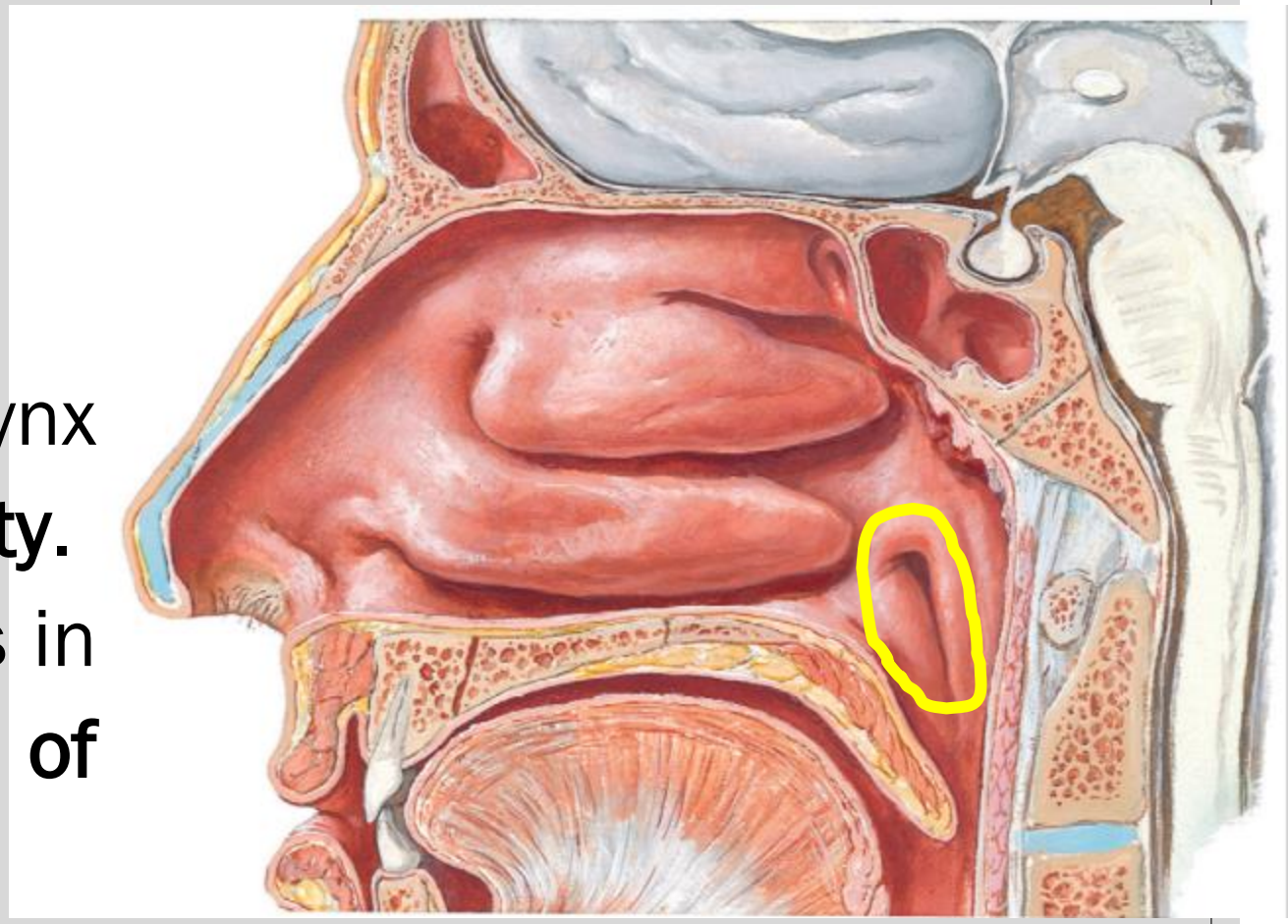
# The pharynx

- Its 12-13 cm long muscular tube **lies behind the oral, nasal and laryngeal cavities.**
- Extends from the **base of skull to the lower border of cricoid cartilage** at the level of lower border of **6$^{th}$ cervical vertebra** where it continues with **esophagus.**

# Parts of pharynx

I. **Nasopharynx**

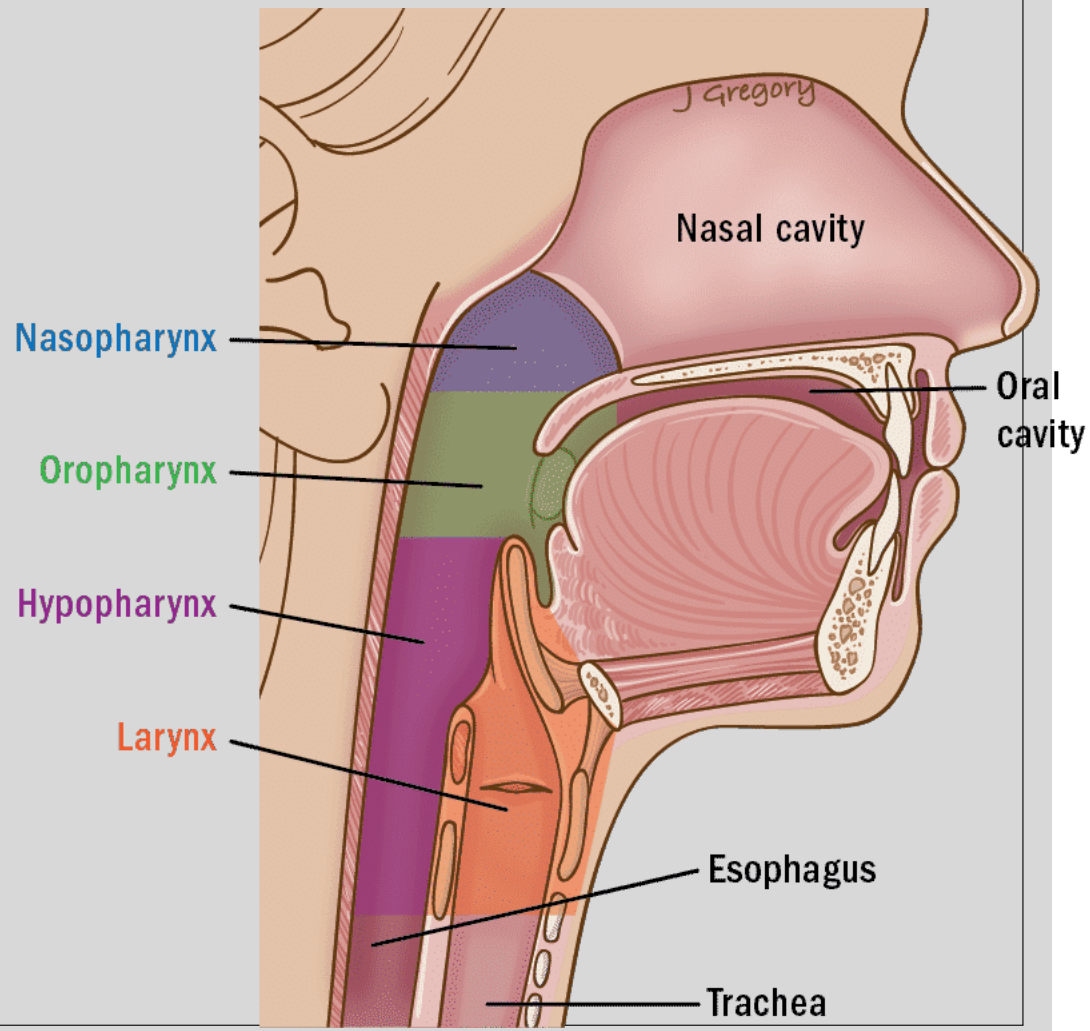
- The upper part of pharynx **lies behind the nasal cavity.**
- Each **auditory tube** opens in **the lateral wall of nasopharynx.**



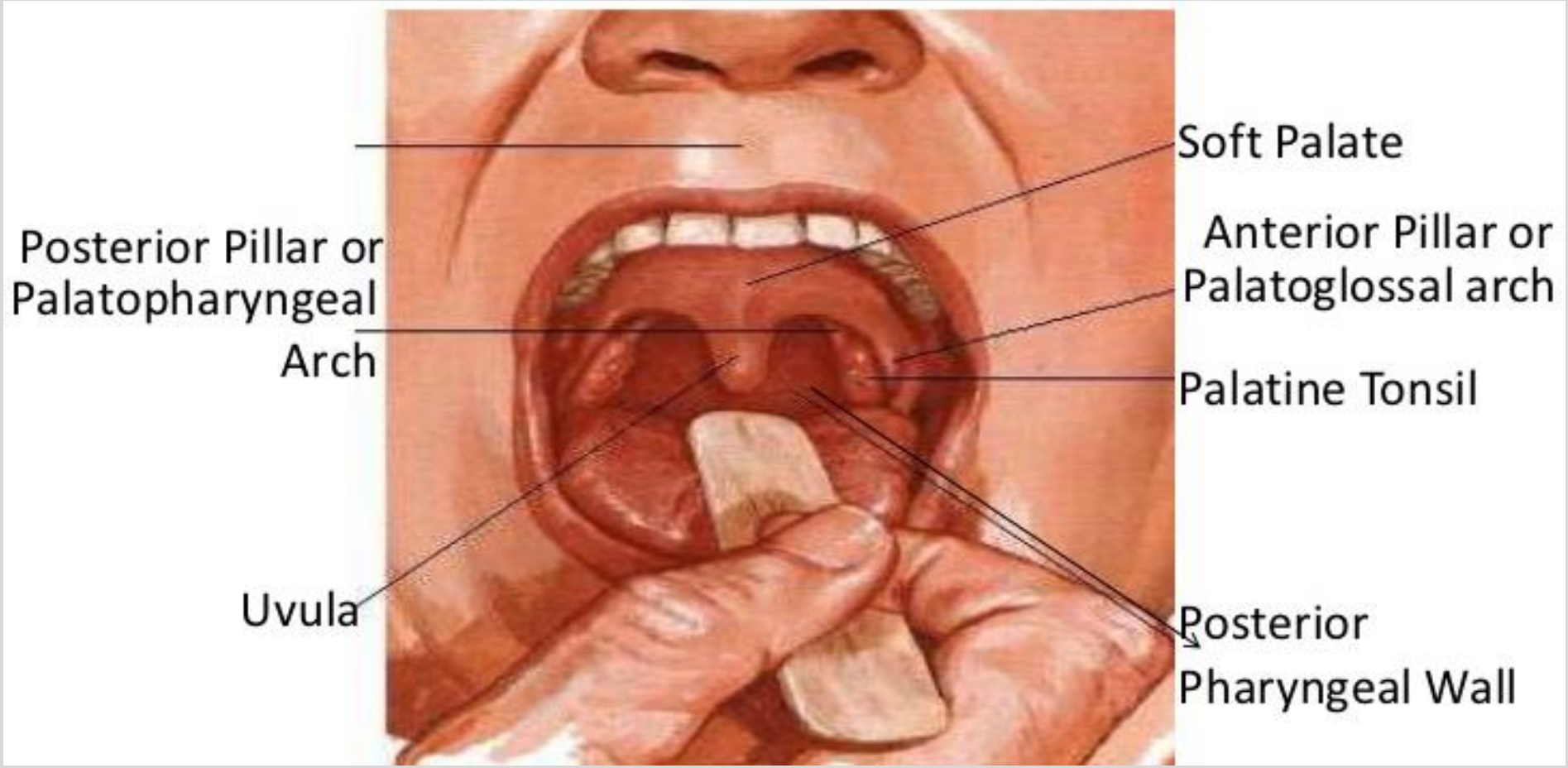
# Parts of pharynx

## II. Oropharynx

- It's the middle part of the pharynx situated **behind the oral cavity.**



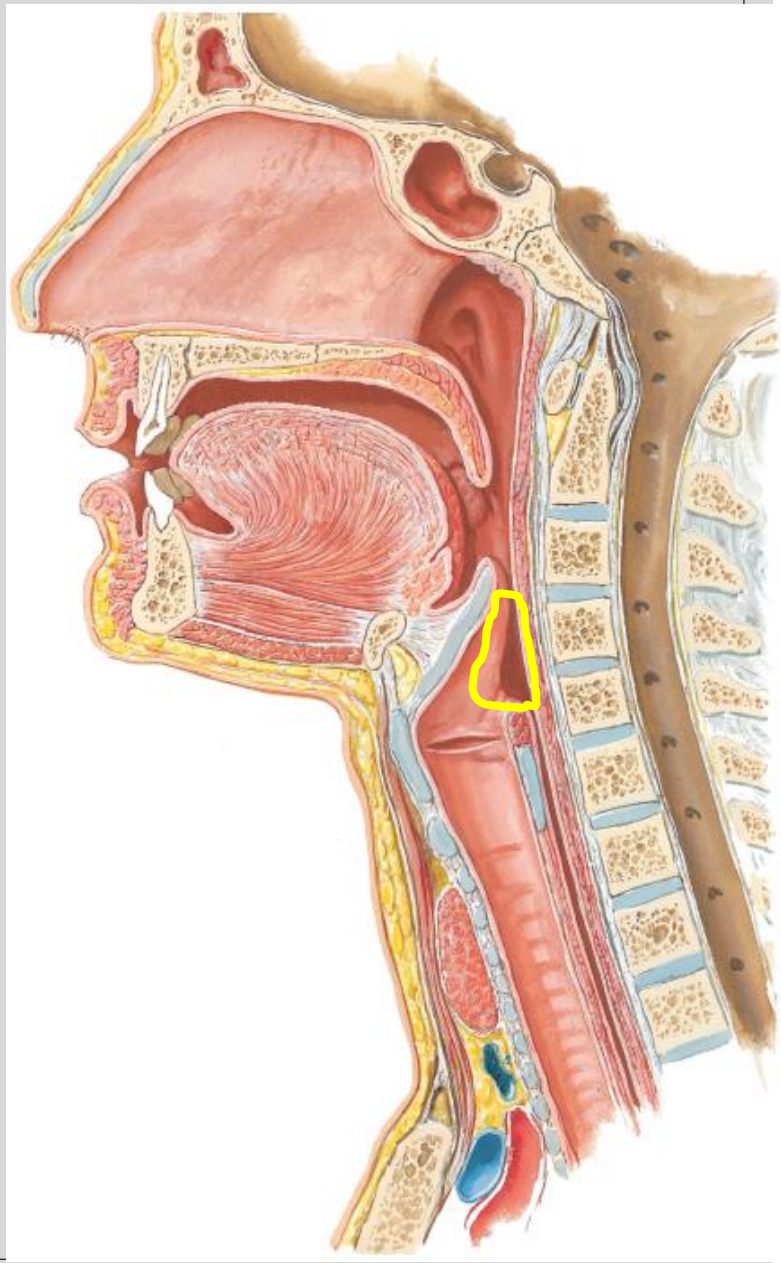
# Oropharynx


Soft Palate
Posterior Pillar or Palatopharyngeal Arch
Anterior Pillar or Palatoglossal arch
Palatine Tonsil
Uvula
Posterior Pharyngeal Wall

# Parts of pharynx

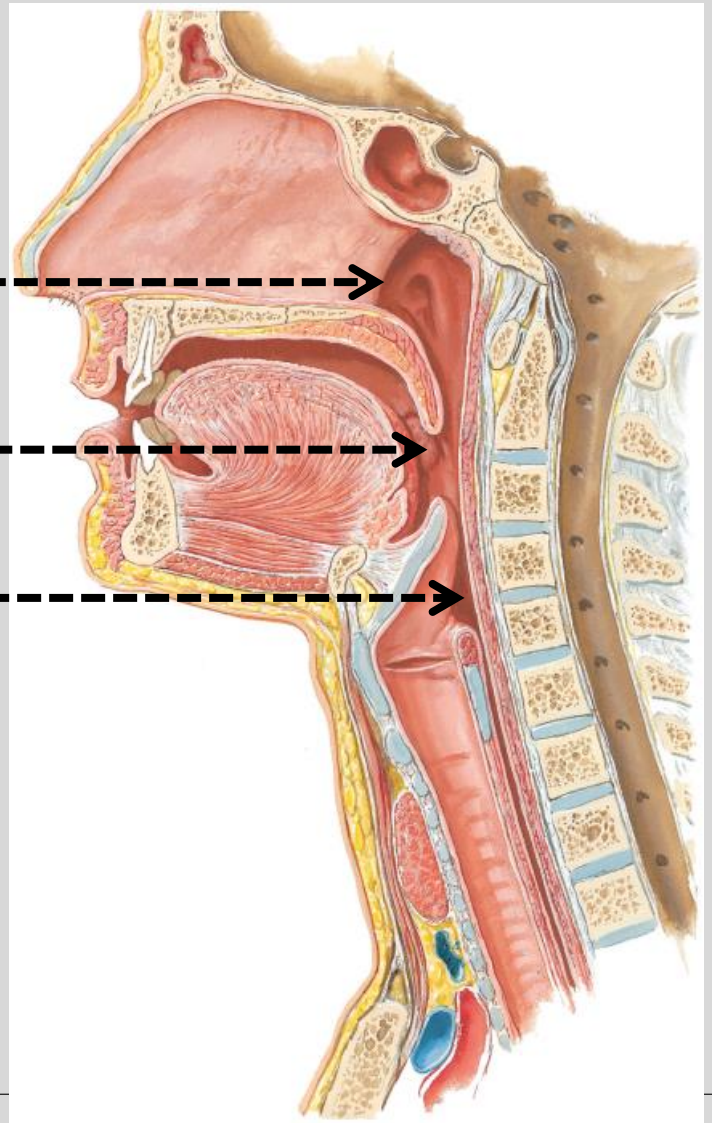
III. **Laryngopharynx (hypopharynx)**

- reaches from the **hyoid bone to the** lower border of the **cricoid cartilage**, where it is continuous with the **esophagus.**



# Parts of Pharynx

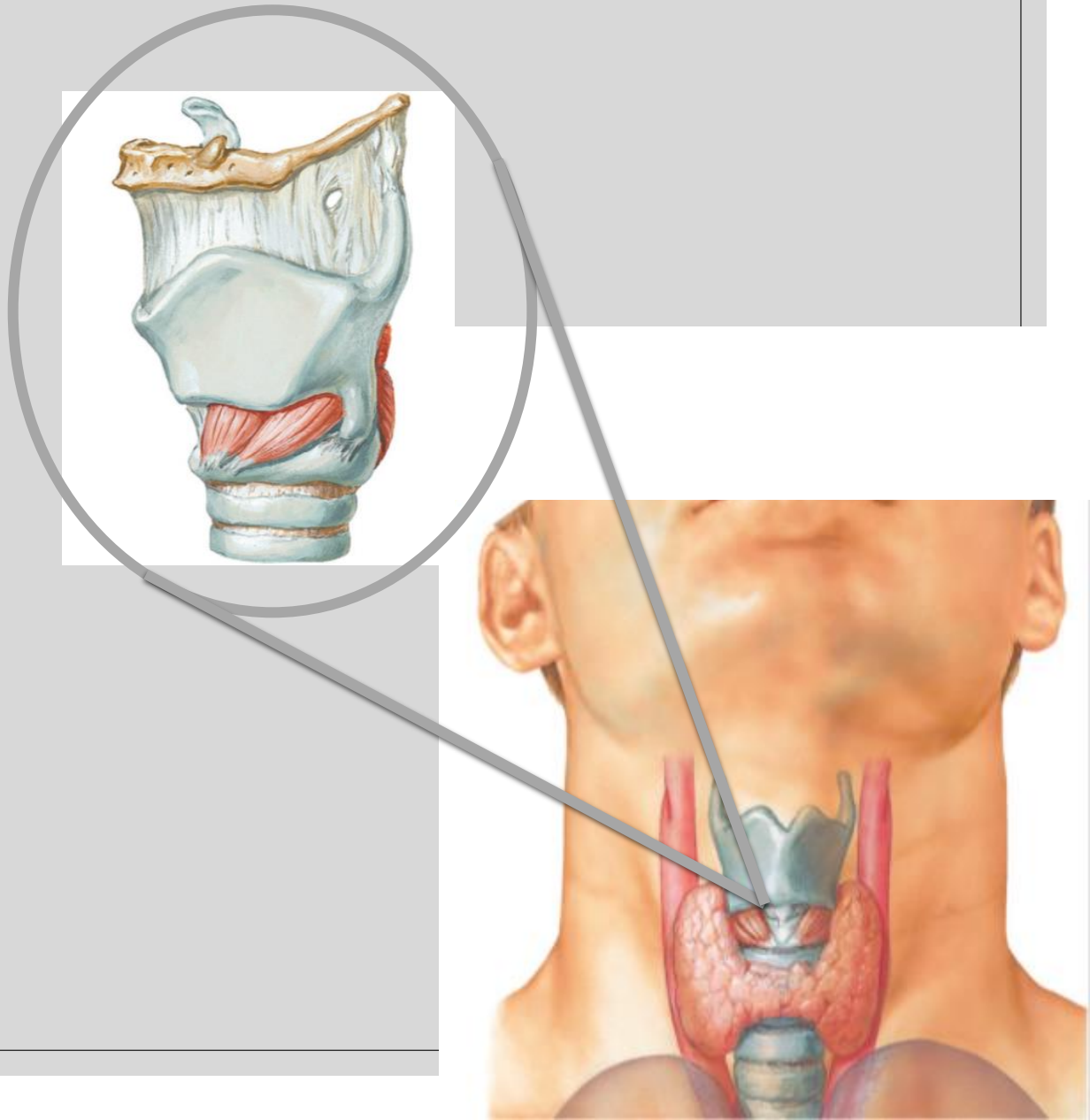
1. Nasopharynx
2. Oropharynx
3. Laryngopharynx



# Larynx

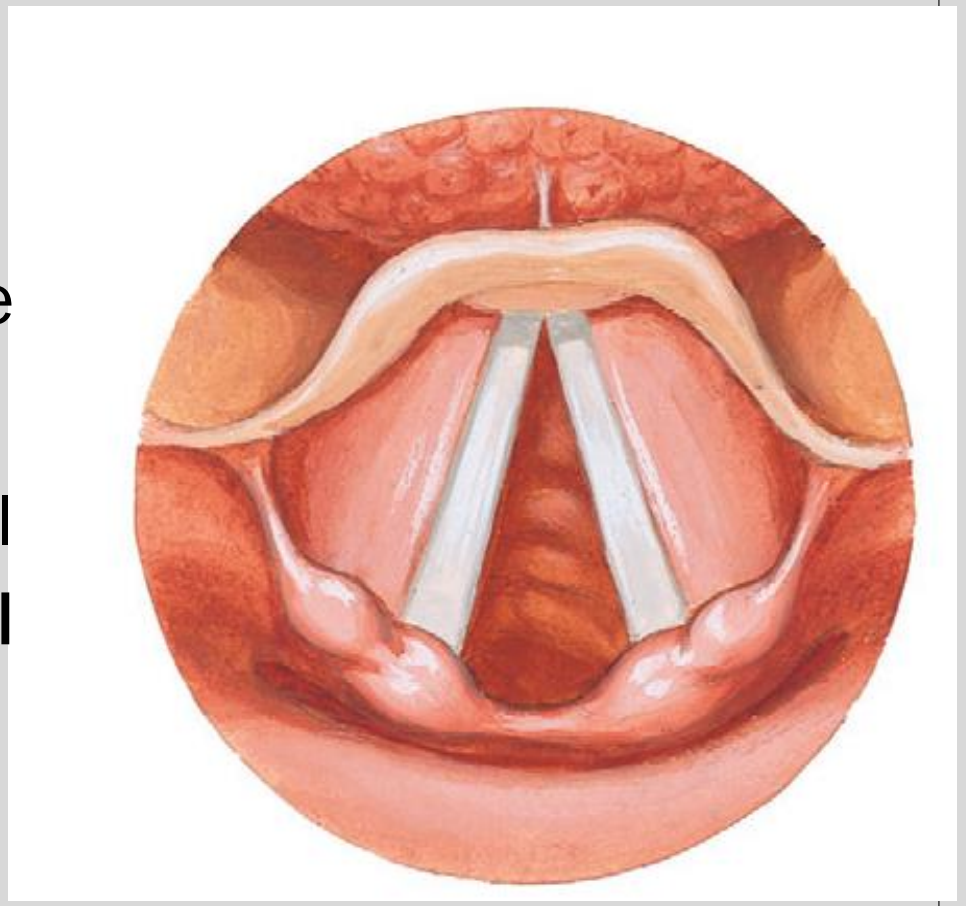
- A **phonation box** and air passage, located in the **middle anterior part of the neck.**

- It is made of a **number of cartilages** connected together by **membranes, ligaments, muscles.**



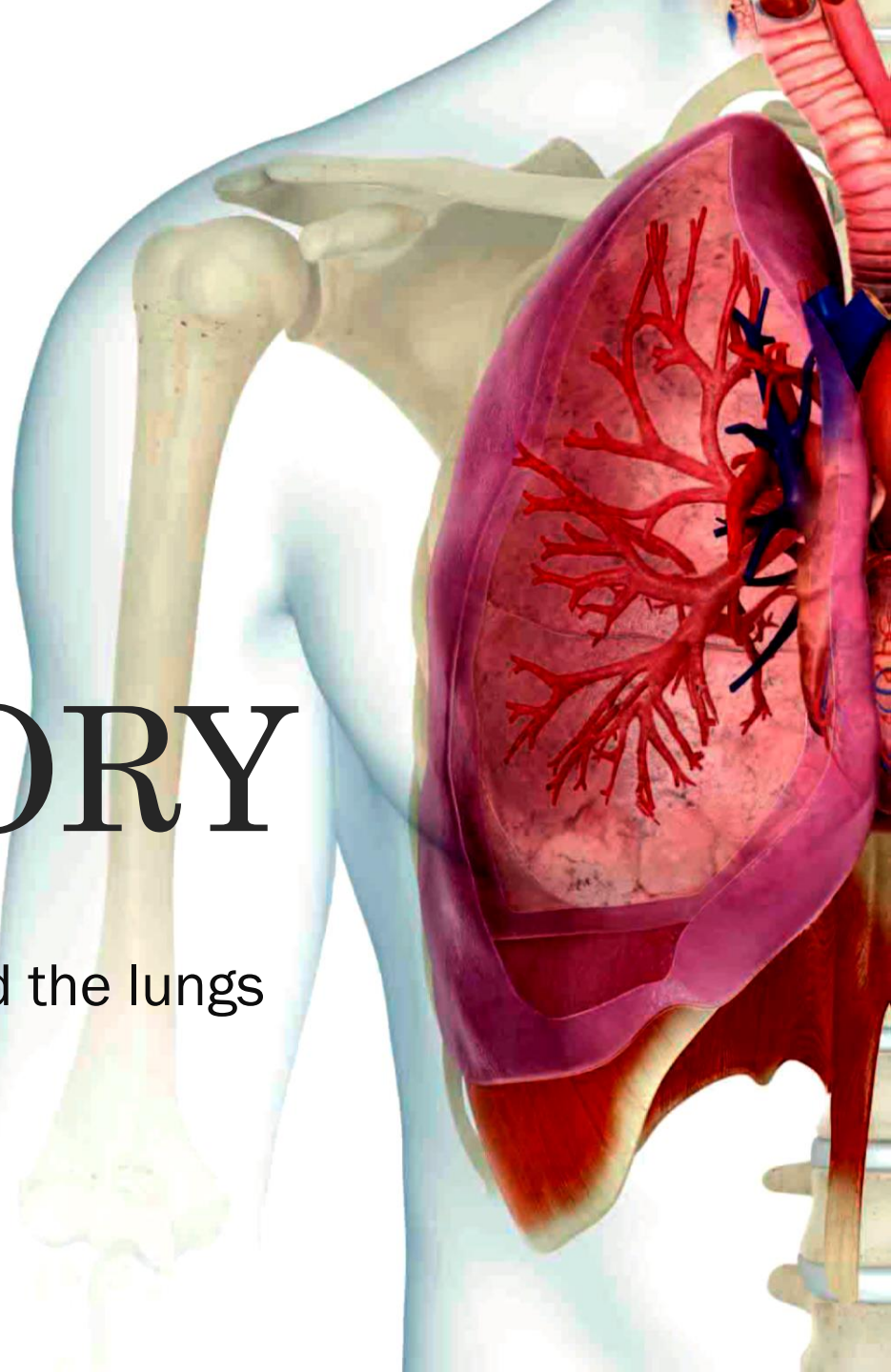
# Larynx

- **Cavity of Larynx**
  - Extends from **inlet of larynx** to the beginning of **trachea.**
  - In the central, middle part of laryngeal cavity, it **contains two pairs of vocal folds or cords.**



# LOWER RESPIRATORY

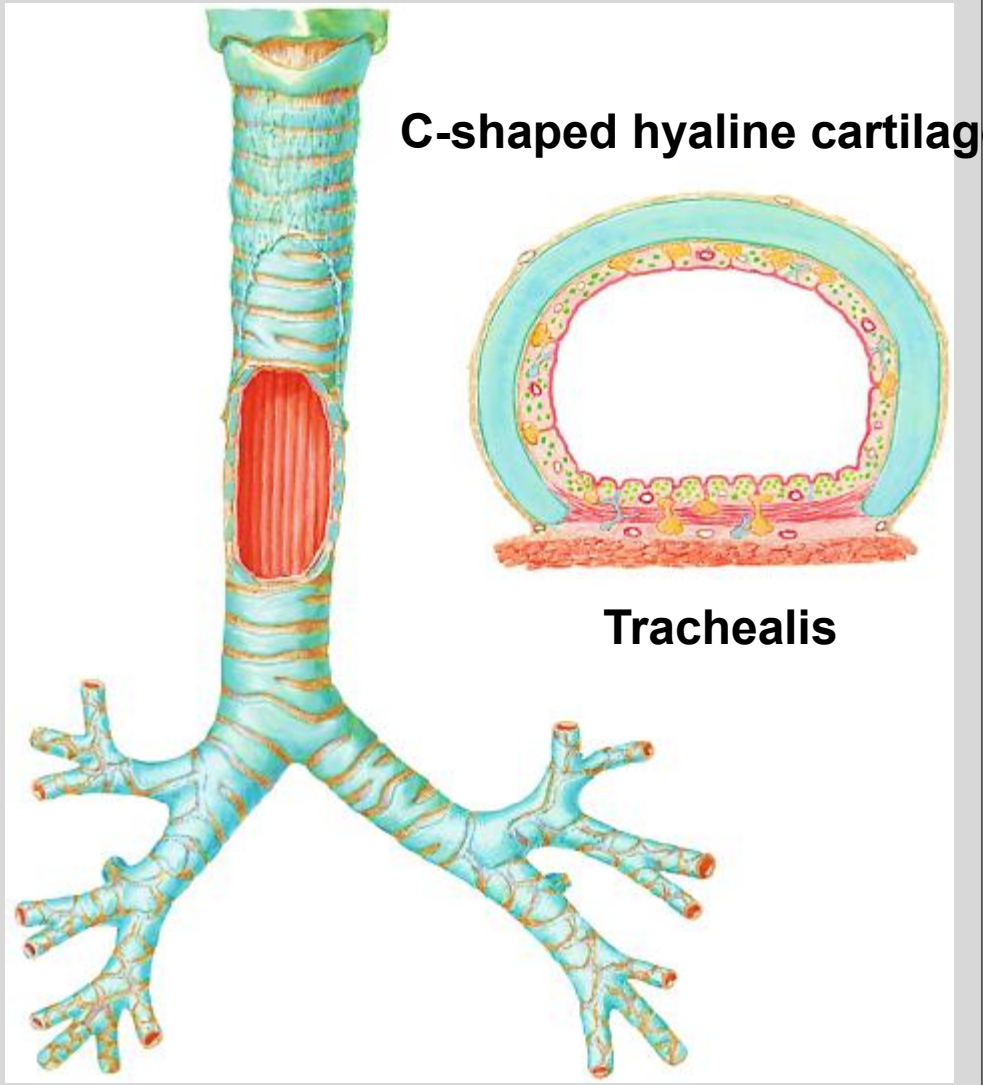
trachea, bronchi, bronchial tree, and the lungs



# Trachea

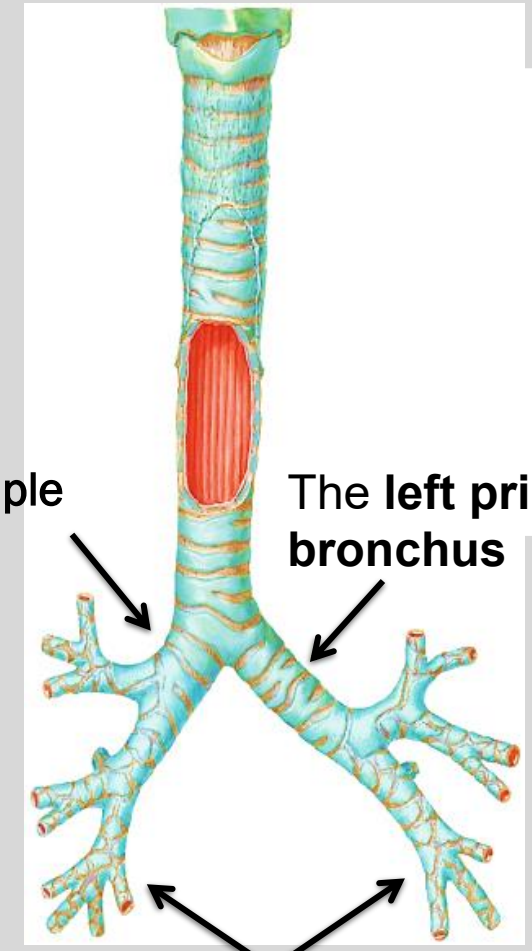
- The trachea begins at the **laryngeal outlet** and terminates at the **level of the sternal angle**, by dividing into the right and left bronchi (**carina = bifurcation of trachea**).

- It is 10 cm long having a **fibromuscular wall** supported by a number of **C-shaped hyaline cartilages.**



# Bronchi and bronchial tree

- The right and left principle bronchi **begins at the level of sternal angle.**



# Lung

- There are a **pair of lungs** in the thoracic cavity.
- Each lung is **covered by pleura**, and protected by **thoracic skeleton.**
- Each lung has an **apex, broad base or inferior surface, sharp anterior border, and sharp inferior border.**
- Each lung has **sterno-costal surface, diaphragmatic surface and mediastinal surface.**

# Lung

- Right lung **is shorter than** the left one due to r**ight lobe of liver** pushing the **right lung superiorly.**
- There are **three lobes in right lung** and **two lobes on the left lung.**
- There are **two fissures on the right lung** (**oblique and horizontal fissures**).
- **Left lung has only one oblique fissure.**

# Surfaces of the lung

- **The costal surface**
- It is **related to the costal pleura**, which **separates it from the ribs, costal cartilages, and innermost intercostal muscles.**
- **The mediastinal surface** of the lung, is **related to the middle mediastinum**, which **contains the pericardium and heart.** The mediastinal surface **includes the hilum**, which receives the **root of the lung.**

# Surfaces of the lung

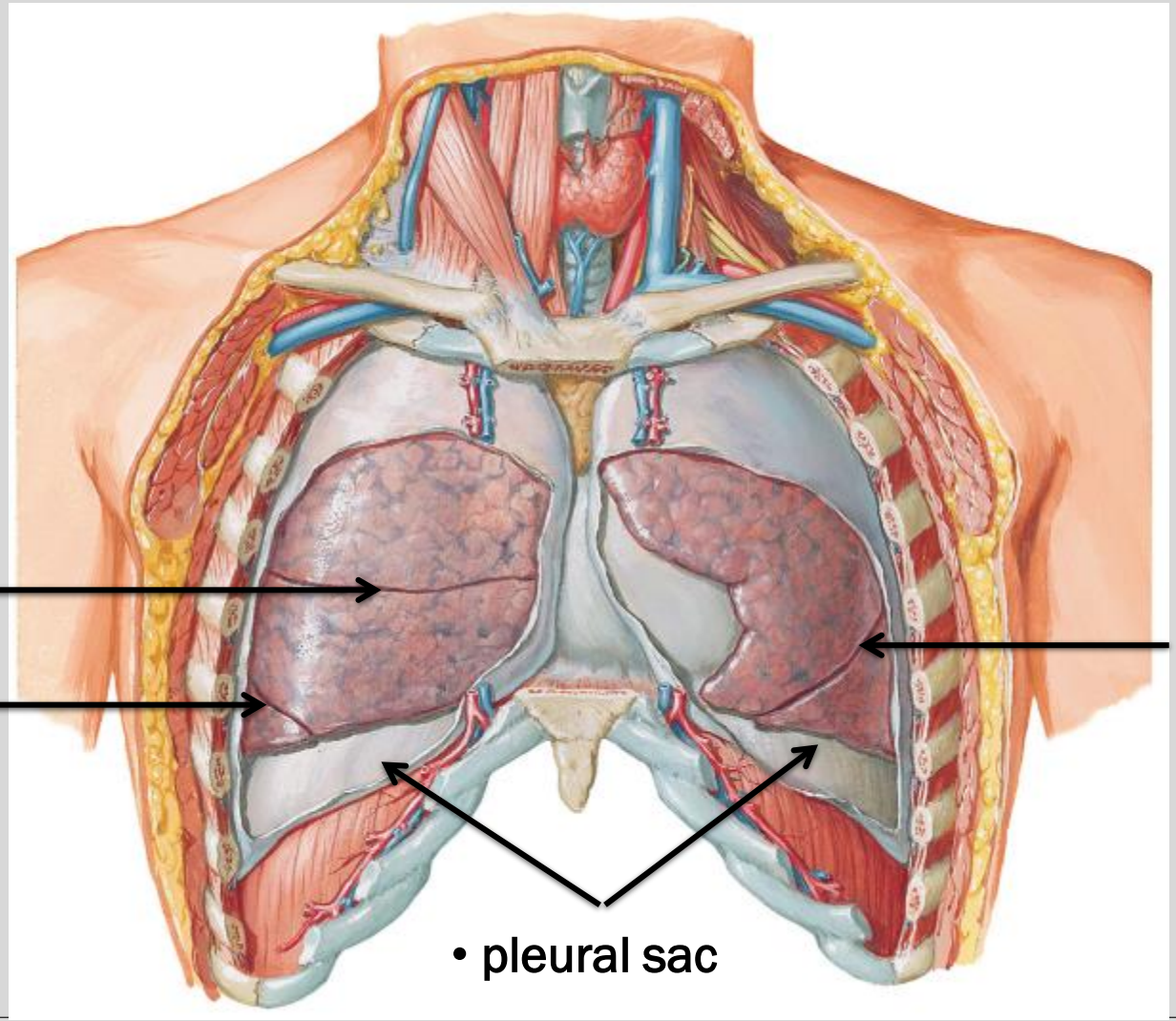
- **The diaphragmatic surface** of the lung, forms the base of the lung, which **rests on the dome of the diaphragm.**

# Lungs

Right lung
•upper lobe
•middle lobe
•lower lobe

•transverse fissures.

•Oblique fissures.

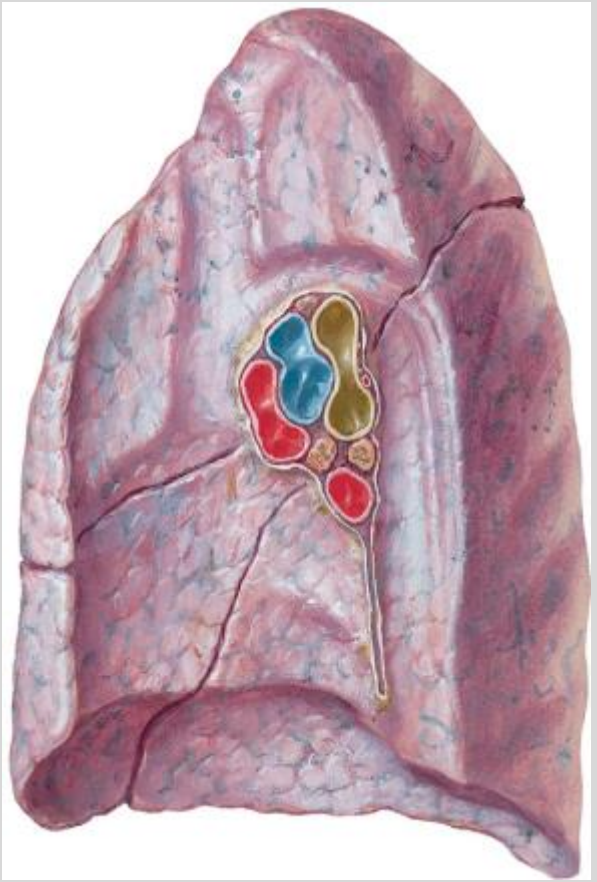



Left lung
•upper lobe
• lower lobe

•oblique fissure.

# The hilum of the lung

- Located **on the mediastinal surface** of each lung through which the **structures forming the root of the lung** pass to enter or exit the lung.



# Differences between

## Right lung

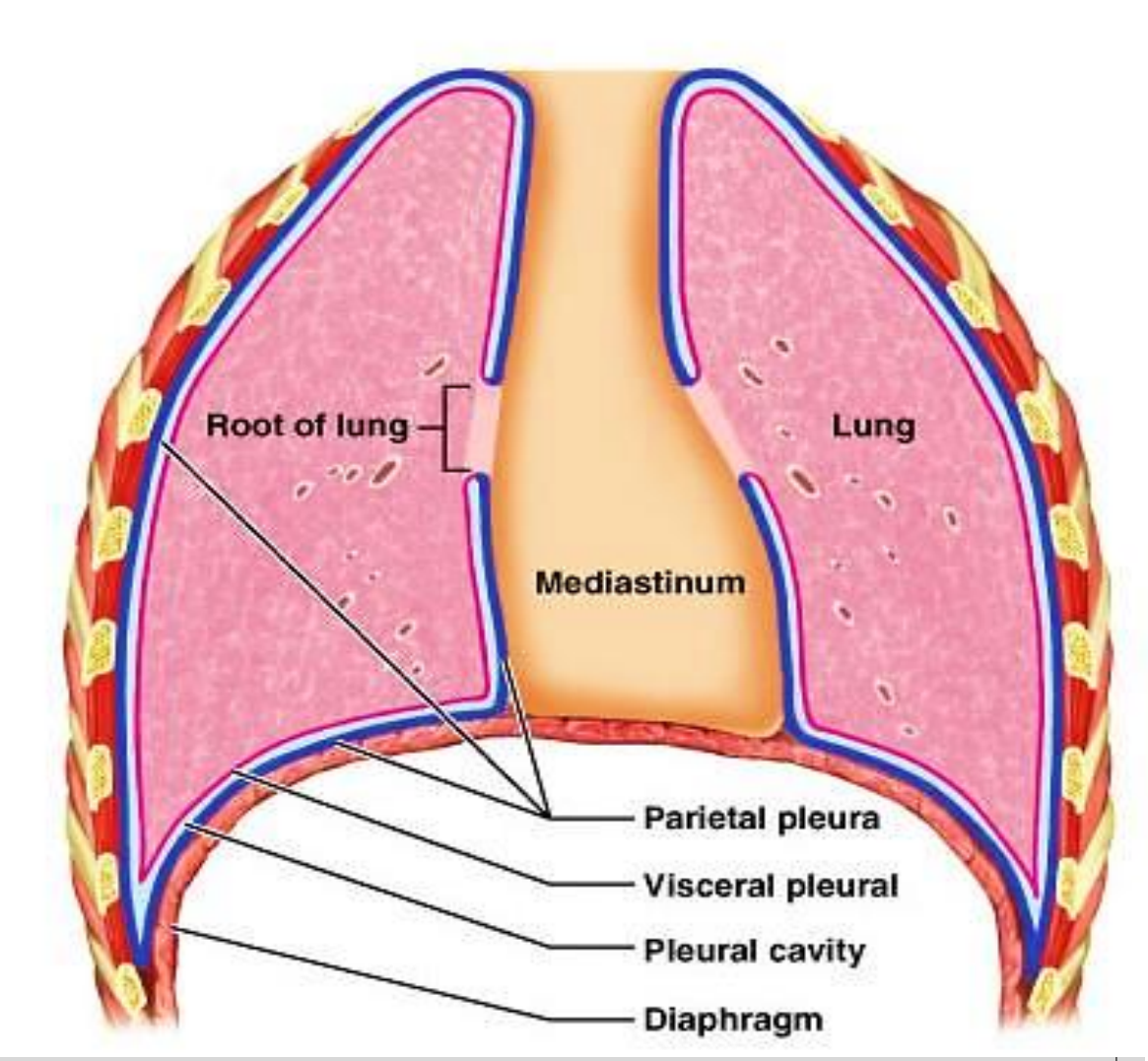
- It has **two** fissures and **three** lobes.
- **Anterior border** is straighter.
- Larger and heavier weight **about 700g.**
- **Shorter** and broader

## Left lung

- Only **one** fissure and **two** lobes.
- **Anterior border** is interrupted by the **cardiac notch**.
- Smaller and lighter, weighs about **600g**.
- **Longer** and narrower.

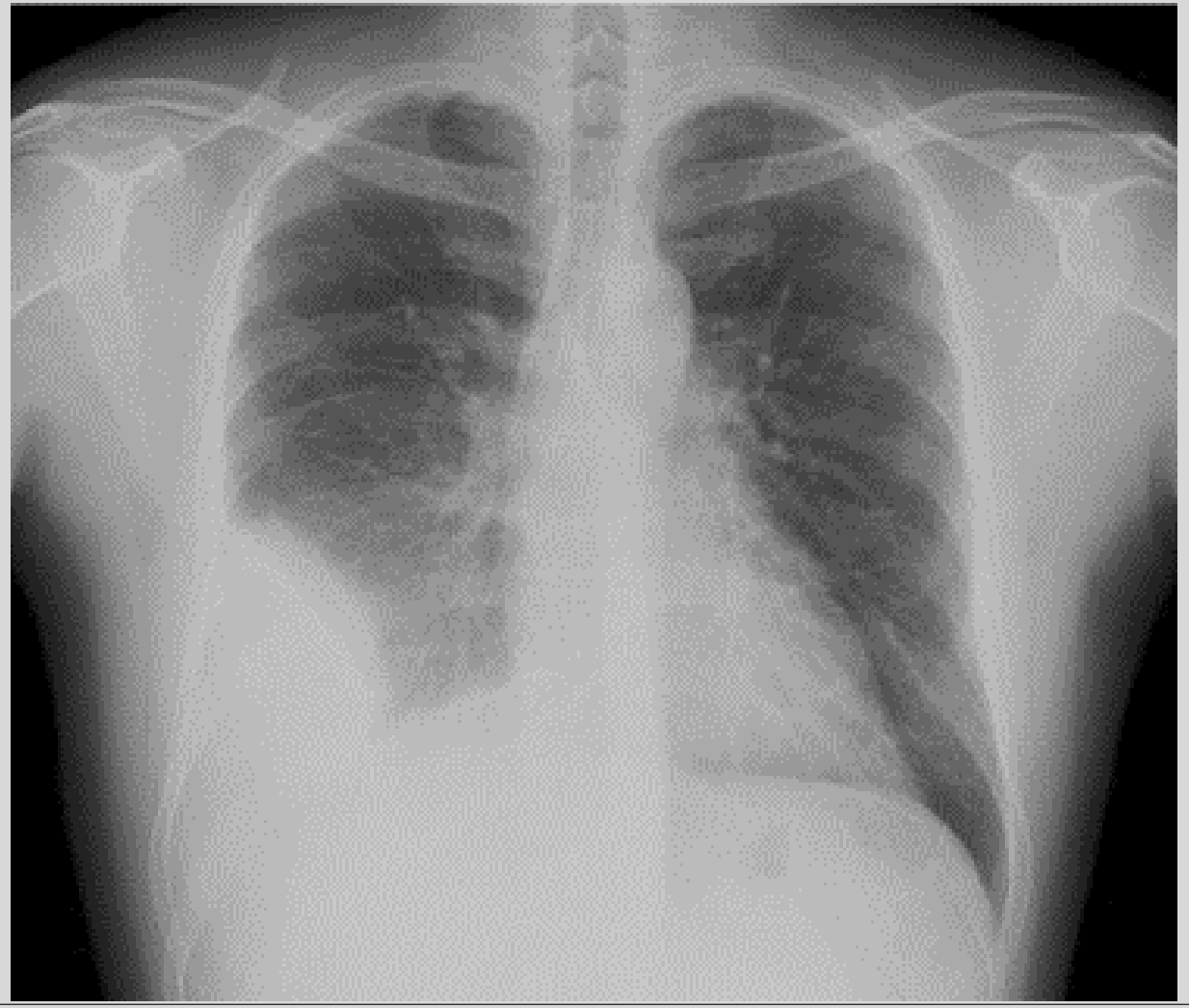
# Pleura

- Serous sac investing the lungs.
- Consists of **outer parietal** and **inner visceral** layers separated by a small space called **pleural cavity**.

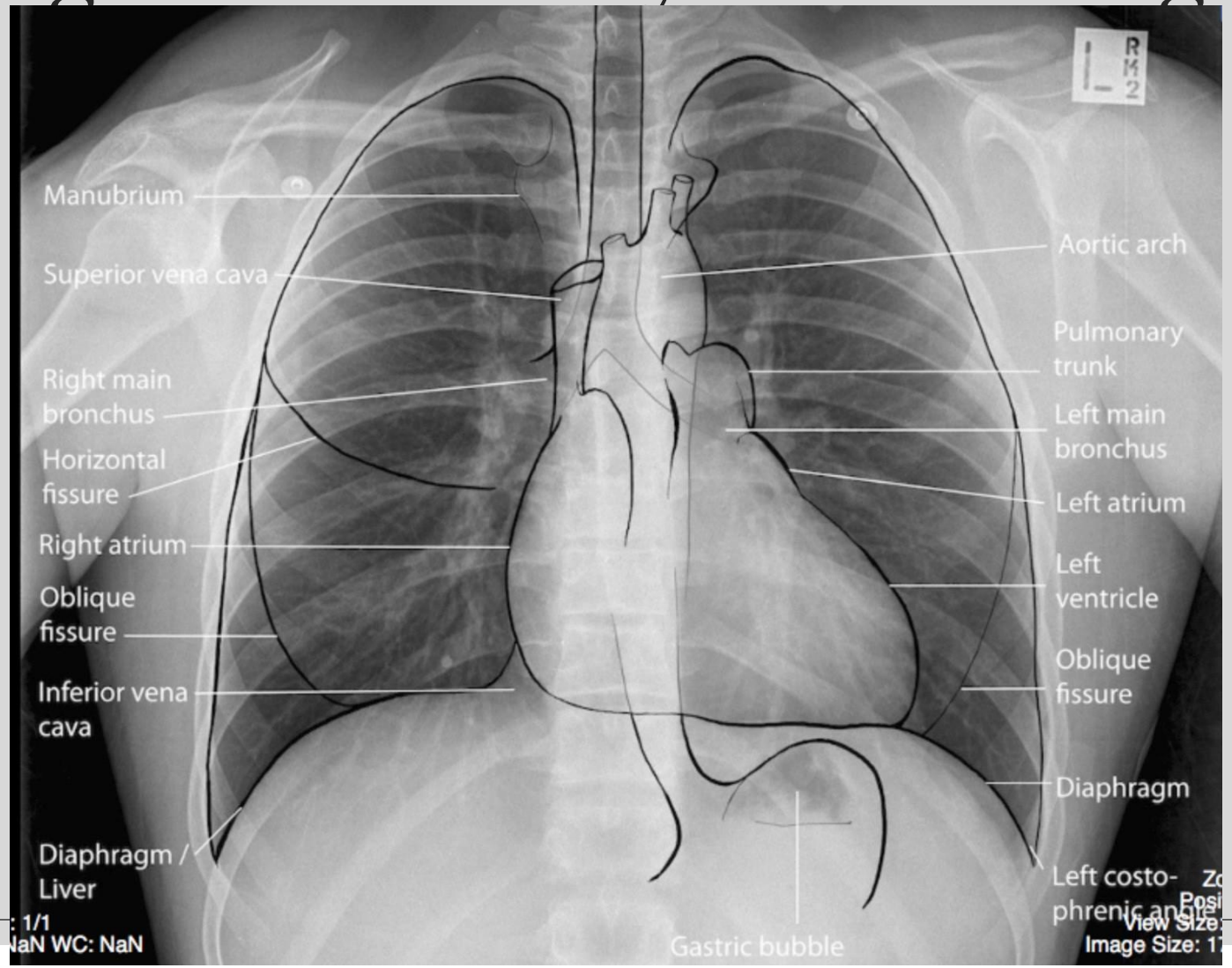


# Clinical notes in pleura

- Pleuritis
- Pneumothorax
- Haemothorax

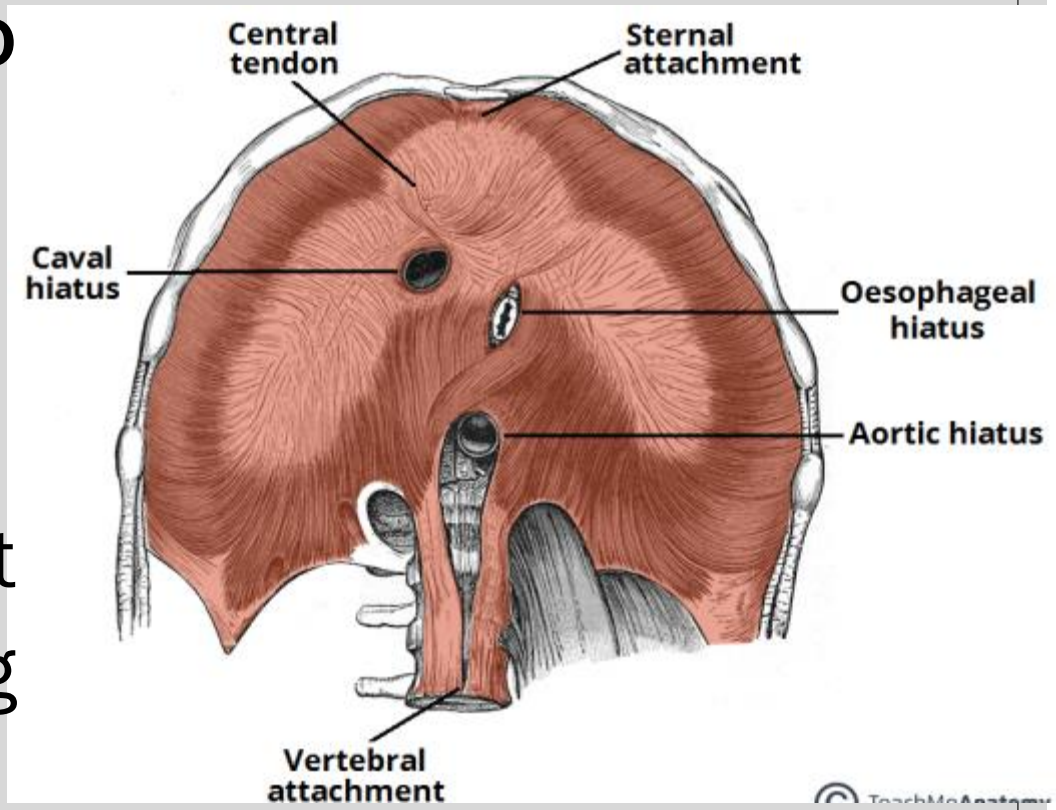


# Radiological-anatomy of the lung



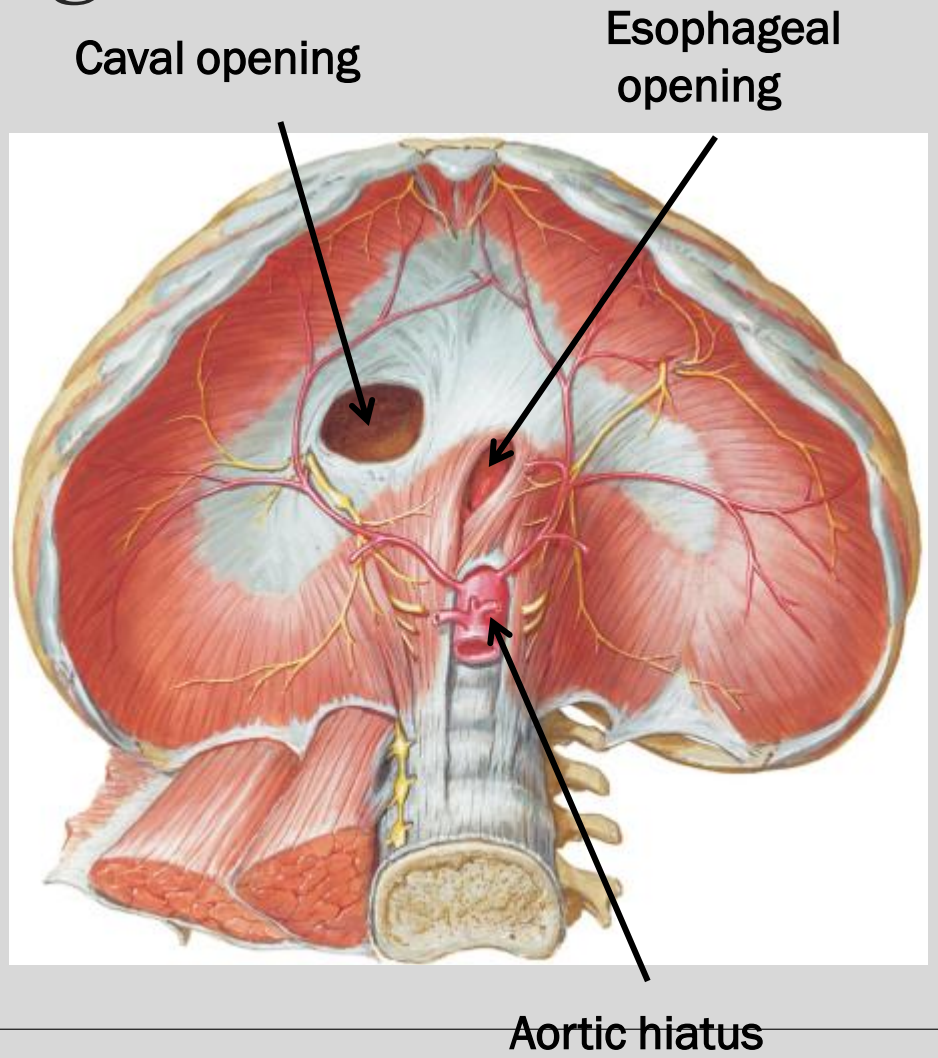
# Diaphragm

- Is musculotendinous, **has two parts:**
  1. **Muscular part fixed.**
  2. **Central part movable.**
- The fibers of the muscular part radiated in the center forming **central tendon**



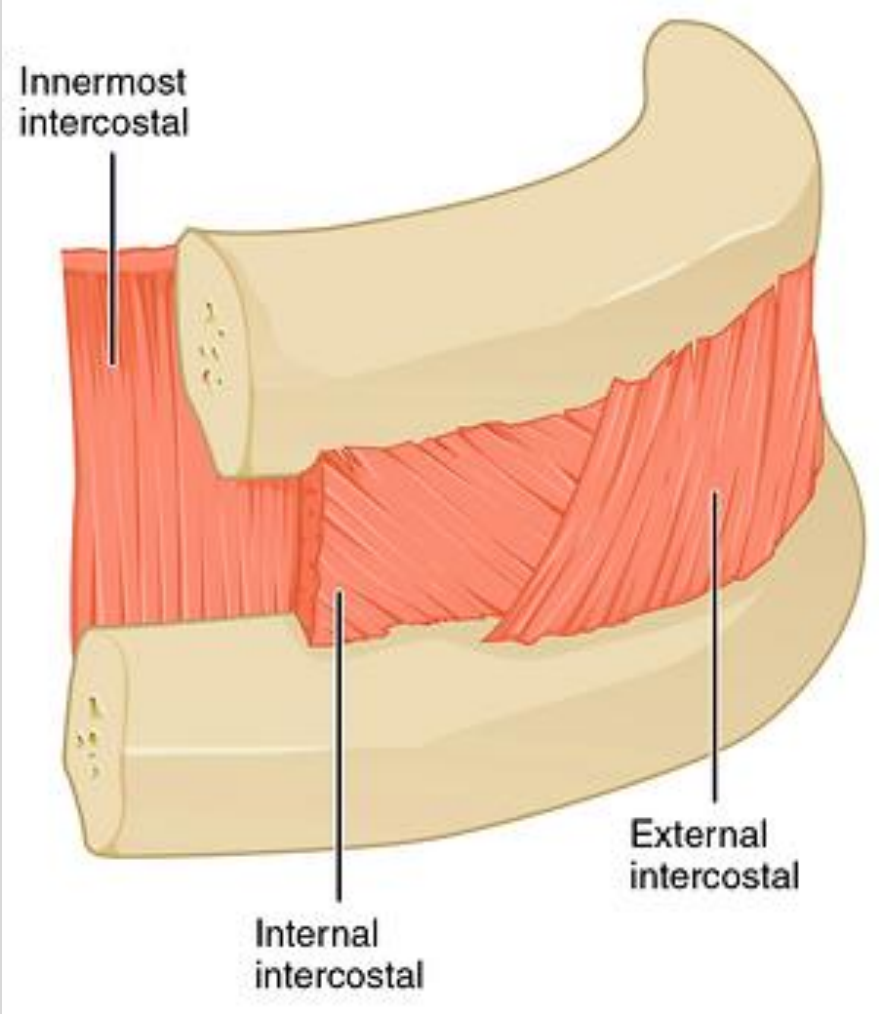
# Opening of the diaphragm

1. **Aortic hiatus** at the level of **T12** for aorta
2. **Esophagus hiatus** at the level of **T10** for esophagus
3. **Caval opening** for IVC at the level of **T8**



# Intercostal muscles

- **External intercostal muscle.**
- **Internal intercostal muscle.**
- **Innermost intercostal muscle:**
  1. Intercostalis
  2. Subcostalis
  3. Sternocostalis (transversus thoracicis).



# Thank you