Mouth

The is also known as the **oral cavity**

It has three major functions:

- **Digestion** – receives food, transfer it to the pharynx preparing it for digestion in the stomach and small intestine.
- **Communication** – modifies the sound produced in the larynx to create a range of sounds.
- **Breathing** – acts as an air inlet in addition to the nasal cavity.

The **oral cavity** lies between the oral fissure (anteriorly – the opening between the lips), and the oropharyngeal isthmus .((posteriorly – the opening of the oropharynx

The two divisions of the oral cavity are the vestibule, and the mouth cavity proper

Vestibule

It is the space between the lips/cheeks, and the gums/teeth

Mouth proper

The mouth proper lies posteriorly to the vestibule, the tongue fills a large proportion of the cavity of the mouth proper.

The **roof** of the mouth proper consists of the hard and soft palates.

The **floor** of the oral cavity consists of several structures: Muscular diaphragm – comprised of the bilateral mylohyoid muscles, geniohyoid muscles, sublingual salivary glands and ducts

Pharynx

It begins at the base of the skull, and ends at the inferior border of the **cricoid cartilage** (C6). The pharynx is comprised of three parts (superior to inferior):

- Nasopharynx
- Oropharynx
- Laryngopharynx

Nasopharynx

The nasopharynx is found between the base of the skull and the soft palate. It is continuous with the nasal cavity, and performs a respiratory function by conditioning inspired air and propagating it into the larynx.

This part of the pharynx is lined with respiratory epithelium; ciliated pseudostratified columnar epithelium with goblet cells.

The posterosuperior nasopharynx contains the adenoid tonsils, which enlarge between 3-8 years of age and then regress.

Oropharynx

It is the middle part of the pharynx, located between the soft palate and the superior border of the epiglottis.

It contains the following structures:

- Posterior 1/3 of the tongue.
- Lingual tonsils – lymphoid tissue at the base of the tongue.
- Palatine tonsils – lymphoid tissue located in the tonsillar fossa (between the palatoglossal and palatopharyngeal arches of the oral cavity).
- Superior constrictor muscle

Waldeyer's ring is the ring of lymphoid tissue in the naso- and oropharynx formed by the paired palatine tonsils, the adenoid tonsils and lingual tonsil.

The oropharynx is involved in the voluntary and involuntary phases of **swallowing**

Laryngopharynx

The most distal part of the pharynx, the **laryngopharynx** is located between the superior border of the epiglottis and inferior border of the cricoid cartilage (C6). It is continuous inferiorly with the oesophagus.

It is found posterior to the larynx and communicates with it via the laryngeal inlet, lateral to which one can find the **piriform fossae**.

The laryngopharynx contains the middle and inferior **pharyngeal constrictors**

Muscles of the pharynx

There are two main groups of **pharyngeal muscles**; longitudinal and circular.

The muscles of the pharynx are mostly innervated by the **vagus nerve** – the only exception being the stylopharyngeus (glossopharyngeal nerve).

Circular

There are three circular pharyngeal constrictor muscles; the superior, middle and inferior **pharyngeal constrictors**.

Superior pharyngeal constrictor – It is located in the oropharynx.

- **Middle pharyngeal constrictor** – located in the laryngopharynx..
- **Inferior pharyngeal constrictor** – located in the laryngopharynx. It has two components:Superior component (thyropharyngeus) ,and Inferior component (cricopharyngeus)

- All pharyngeal constrictors muscles are innervated by the **vagus nerve** (CN X)

The **longitudinal muscles**

- **Stylopharyngeus**-
- it is innervated by the glossopharyngeal nerve (CN IX).

- **Palatopharyngeus** –
- Innervated by the vagus nerve (CN X).

- **Salpingopharyngeus** –
- Innervated by the vagus nerve (CN X).

Blood supply of the pharynx

Arterial supply to the pharynx is via branches of the **external carotid** artery:

- Ascending pharyngeal artery
- Branches of the facial artery
- Branches of the lingual and maxillary arteries.

Venous drainage is achieved by the **pharyngeal venous plexus**, which drains into the internal jugular vein.

Swallowing

Oral stage (voluntary control):

Oral transport: Food bolus manipulated by tongue ◊ broken down by teeth ◊ propelled towards oropharynx

Pharyngeal stage:

Initiated as the bolus reaches the back of the tongue, then the larynx closed, and the epiglottis will covers laryngeal entrance and directs bolus in two paths "into valleculae and pyriform fossa" then the two columns of the divided bolus will meets at the upper border of the relaxed cricopharyngeus muscle which allows the food to enter esophagus.

LARYNX

The cartilaginous framework

A. **Unpaired cartilages**

1. Epiglottis
2. The cricoid cartilage

B. **Paired cartilages**

1. The arytenoids cartilages
2. The thyroid cartilages

Intrinsic muscles

I – Muscle that open the vocal cords

Posterior cricoarytenoid muscle

II- Muscles that close the vocal cords

Lateral cricoarytenoid muscle

Interarytenoid musle

Cricothyroid muscle

III-Muscles that increase the tension of the vocal cords

Thyroarytenoid (vocalis) muscle

Arterial blood supply

Superior Laryngeal artery: branch of superior thyroid artery

Inferior Laryngeal artery: branch of inferior thyroid artery

Cricothyroid artery: branch of superior thyroid artery

Innervation

Motor innervations by the recurrent laryngeal nerve that supplies all the intrinsic muscles of the larynx except the cricothyroid muscle which is supplied by the external laryngeal nerve which is branch of superior laryngeal nerve

Sensory innervations of the larynx for the area above the vocal cords is supplied by the internal laryngeal branch of superior laryngeal nerve while the area below the vocal cords is supplied by the recurrent laryngeal nerve.

Functions of Larynx

1. Protection of lower airways
2. Phonation
3. Respiration
4. Fixation of chest