Introduction to Human Anatomy

GASTROINTESTINAL TRACT (GIT)

(DIGESTIVE SYSTEM)

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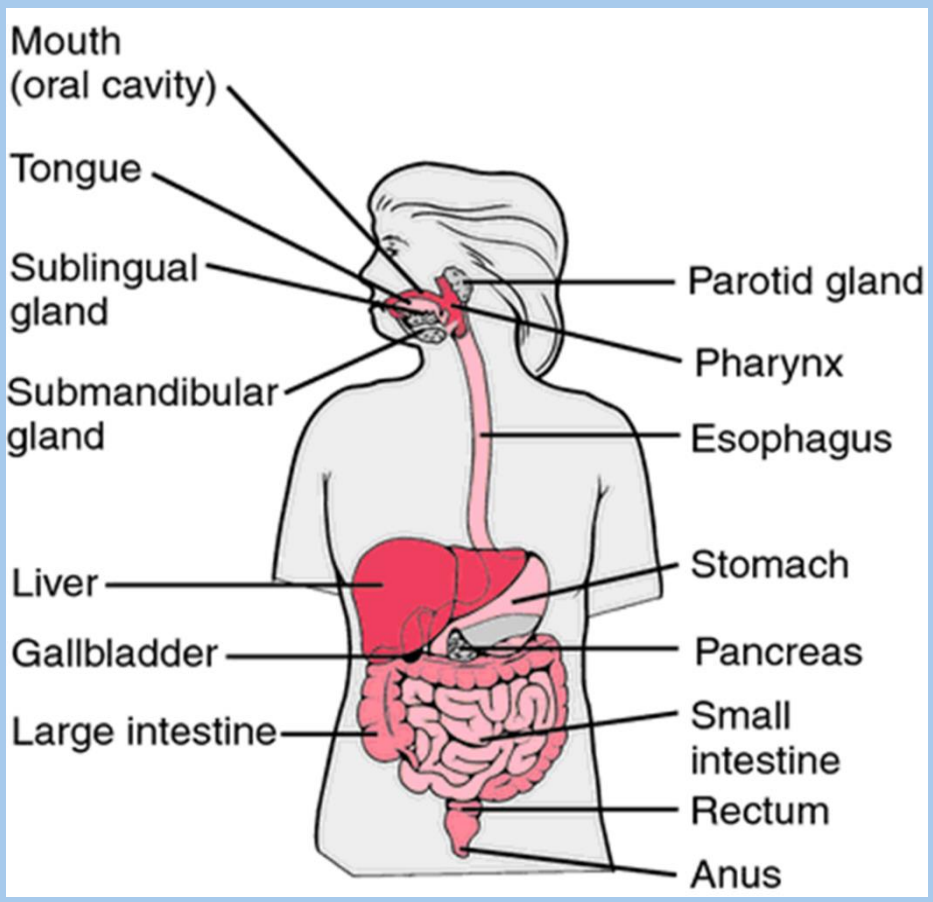
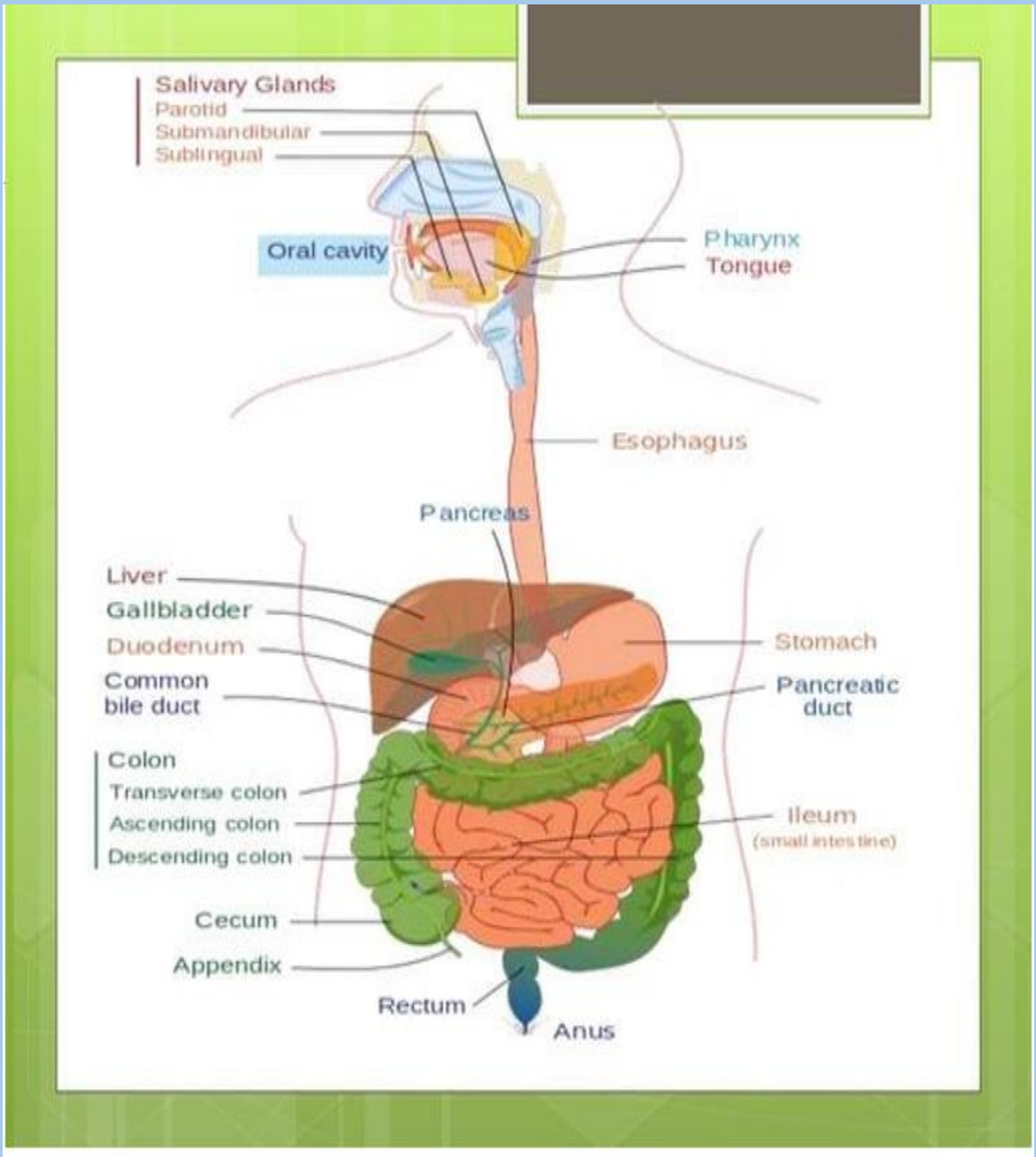


The digestive system consists of:

A. Alimentary canal: includes the mouth, pharynx, oesophagus, stomach, small intestine and large intestine.

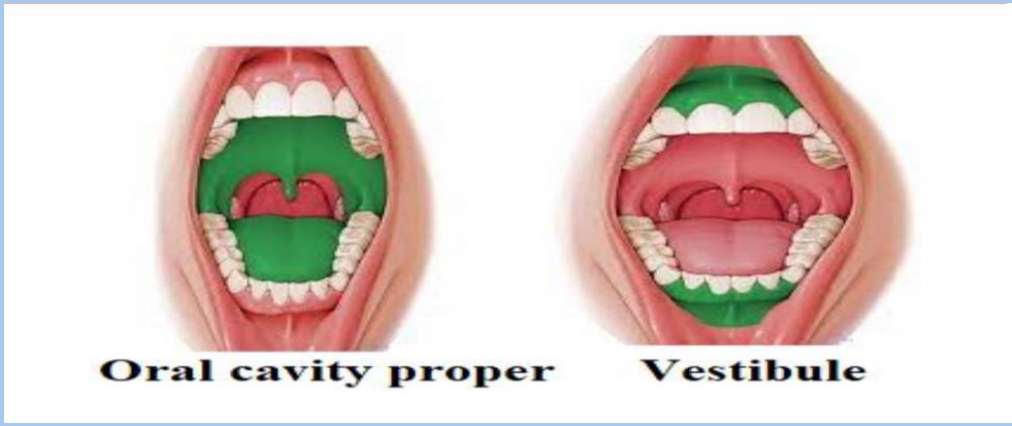
B. Digestive glands: liver, pancreas and salivary glands.

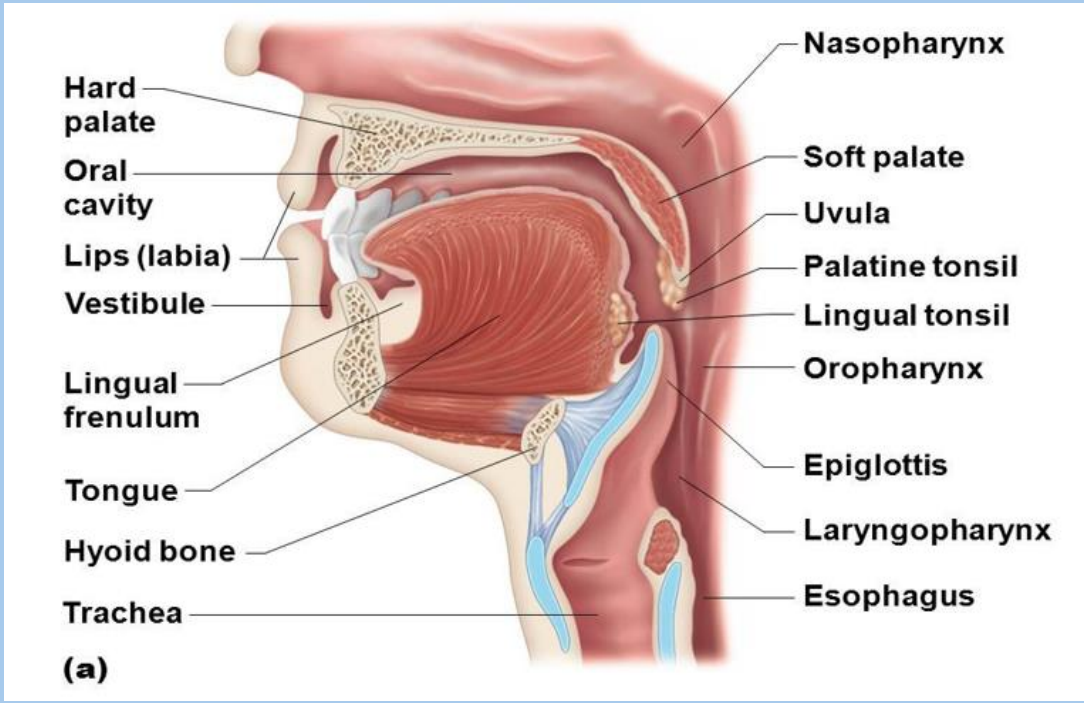


1. The Mouth (oral) Cavity: responsible for food intake.

It is divided into 2 parts:

- Mouth cavity proper: the part surrounded by the gum and teeth.
- Vestibule: the part between the cheeks & lips externally and gum and teeth internally.





- The oral cavity contains the following

Tongue: muscular organ which has the following functions:1. Manipulates the food bolus (chewing and swallowing)

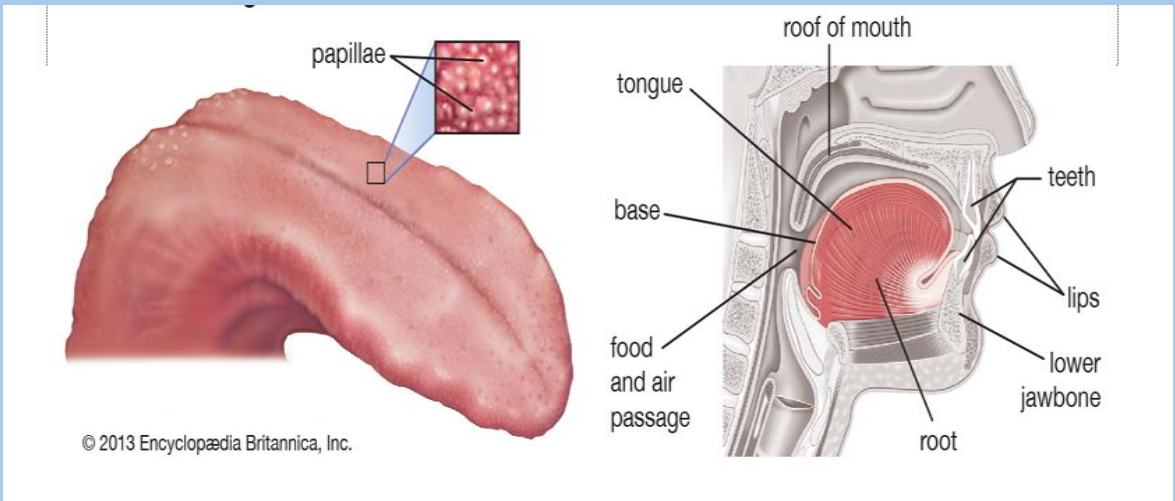
2. Contain receptors for general and taste sensation.

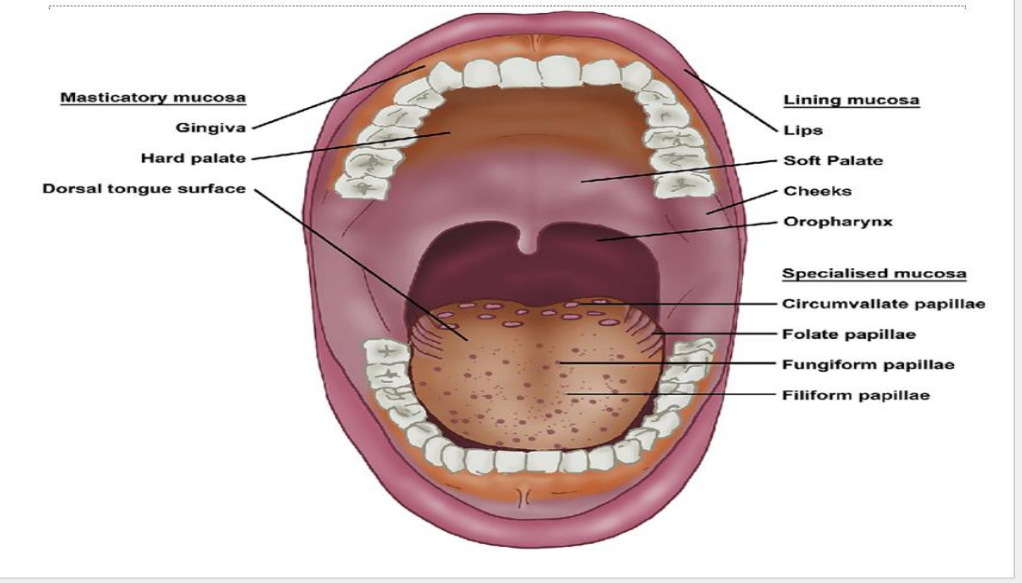
3. Speech.

- Teeth: there are 2 types of teeth; deciduous (milk) teeth in children (20)

and permanent teeth in adults (32).

- Openings of the ducts of salivary glands: secrete saliva in the mouth to begin digestion.

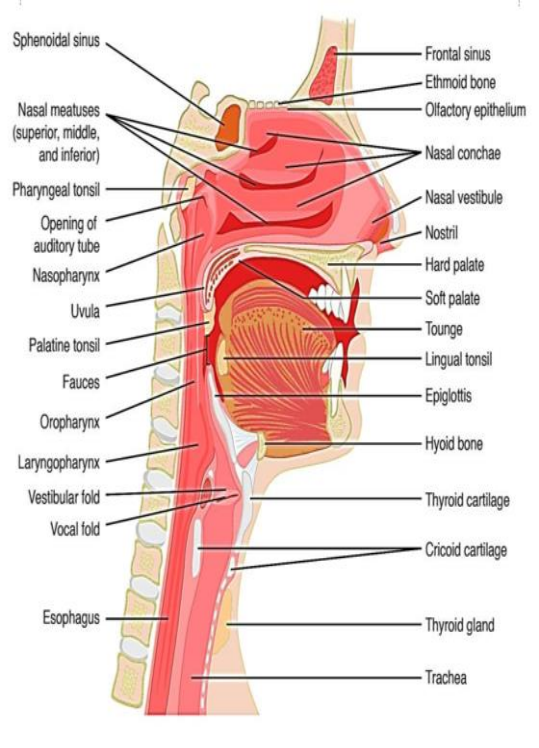


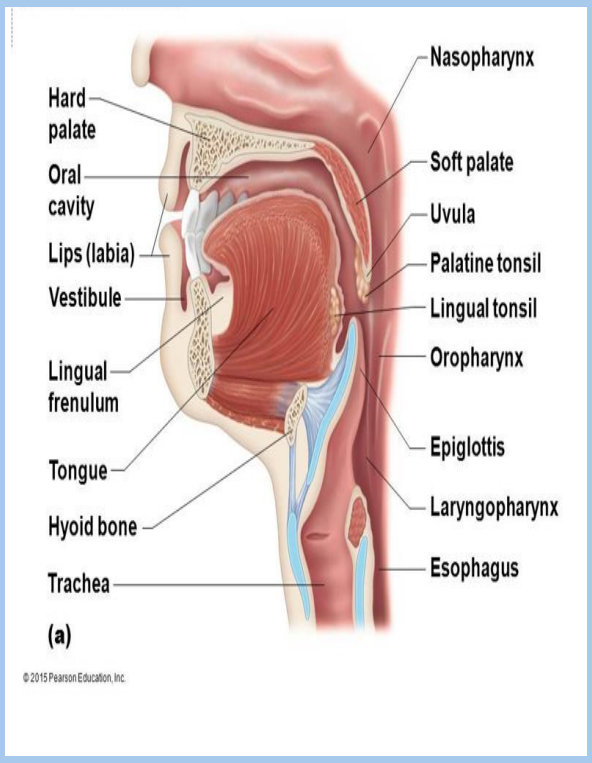


2. Pharynx: is a common pathway for air & food (see the respiratory system).

It is a wide 12cm muscular tube that extend from the base of the skull to the level of the sixth cervical vertebra where it is continuous with the oesophogus. It is divided by the soft palate and epiglottis into three parts); nasopharynx, oropharynx and laryngopharynx.

3. Oesophagus: is a hollow muscular tube which transmit food from the pharynx to the stomach. It is about 25 cm in length.





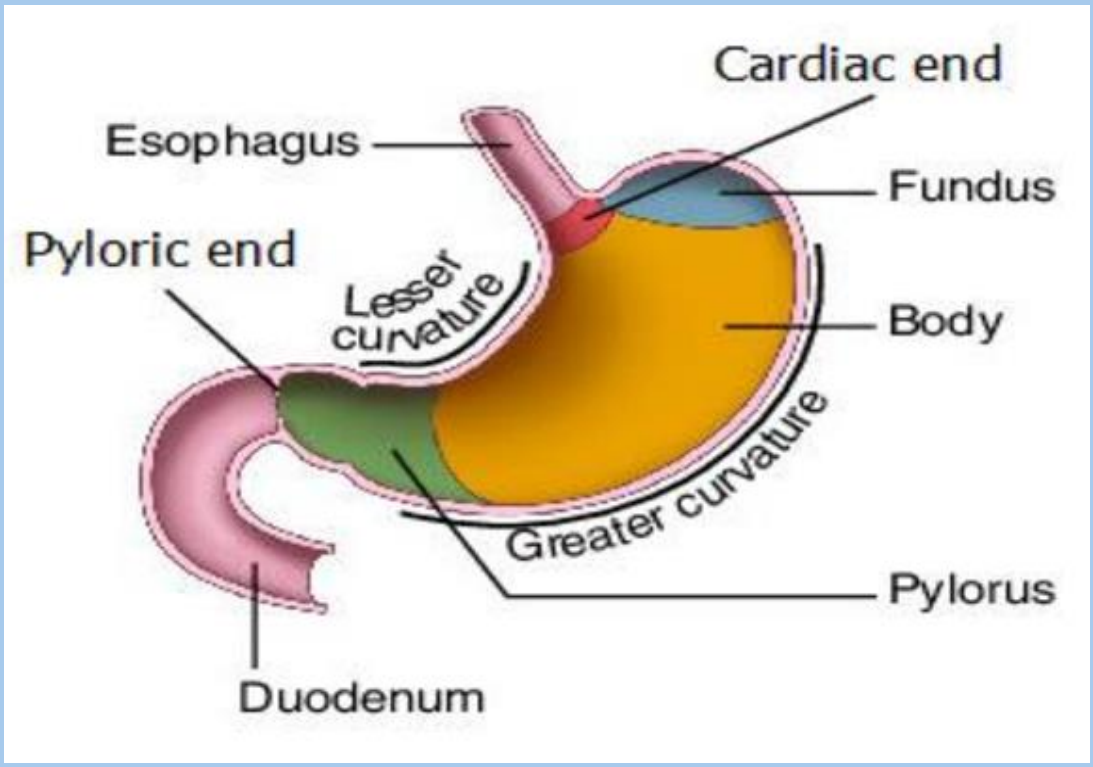
4. Stomach:

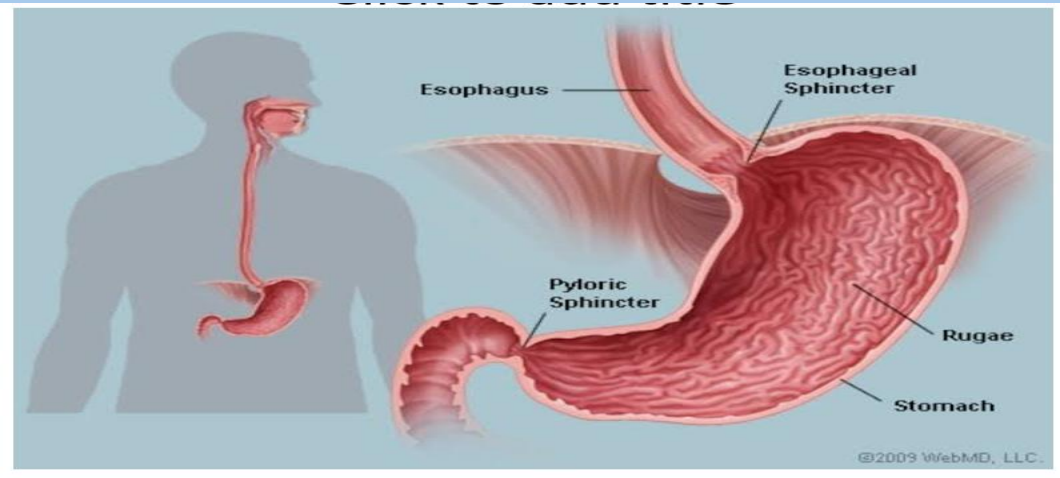
- It is the most dilated part of the alimentary canal.
- It lies in the upper left part of the abdominal cavity.
- It is J-shaped having:

2 ends: cardiac (upper) end and pyloric (lower) end.

2 borders: lesser curvature (right) and greater curvature (left).

- It is divided into cardiac part (shows fundus and body) and pyloric part.
- Its secretion is rich in Hal and digestive enzymes.





Relations

Anteriorly:-

1- Anterior abdominal wall

2- Left lobe of liver

4- Diaphragm

B- Posterior relations = stomach bed:-

1- Pancreas

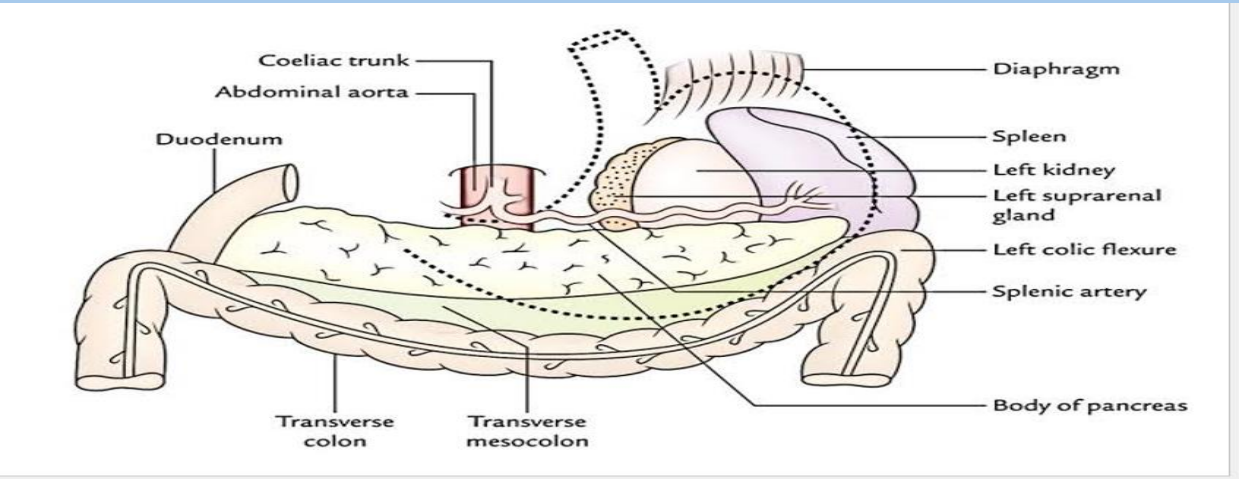
2- Splenic Artery

3- Left kidney

4- Left suprarenal gland

5- Transverse mesocolon

6- Spleen



5-Small Intestine:

- It is a coiled tube about 6 meters long.
- It lies in the central and lower parts of the abdominal cavity.
- It consists of 3 parts; duodenum, jejunum and ileum.

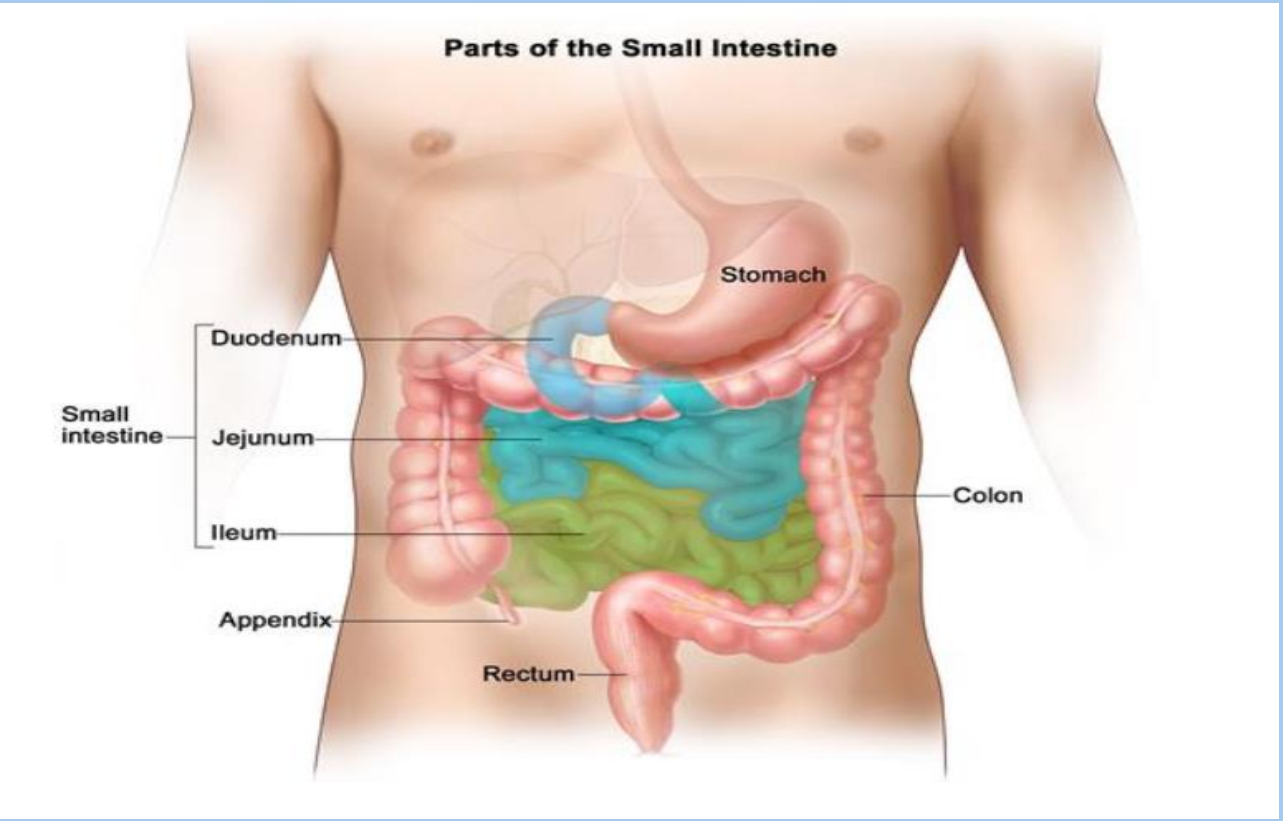
1. Duodenum:

- It is the proximal part of small intestine. It is about 25 cm in length.
- It is C-shaped formed of 4 parts (1st, 2nd, 3rd & 4th).

2. Jejunum: it is the middle part of the small intestine. It resembles about 2/5 of the length of the small intestine.

3. Ileum: it is the distal part of the small intestine. It resembles about 3/5 of the length of the small intestine. It end at into the caecum.

Ileocecal junction: is the area where the ileum (last part of the small intestine) meets the caecum (first part of large intestine). It is protected by the ileocecal valve.

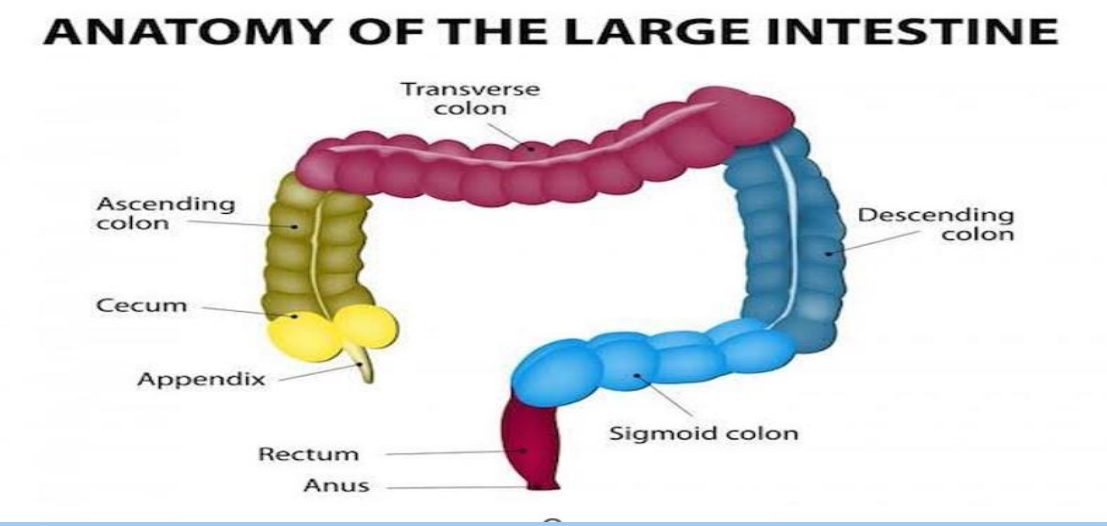


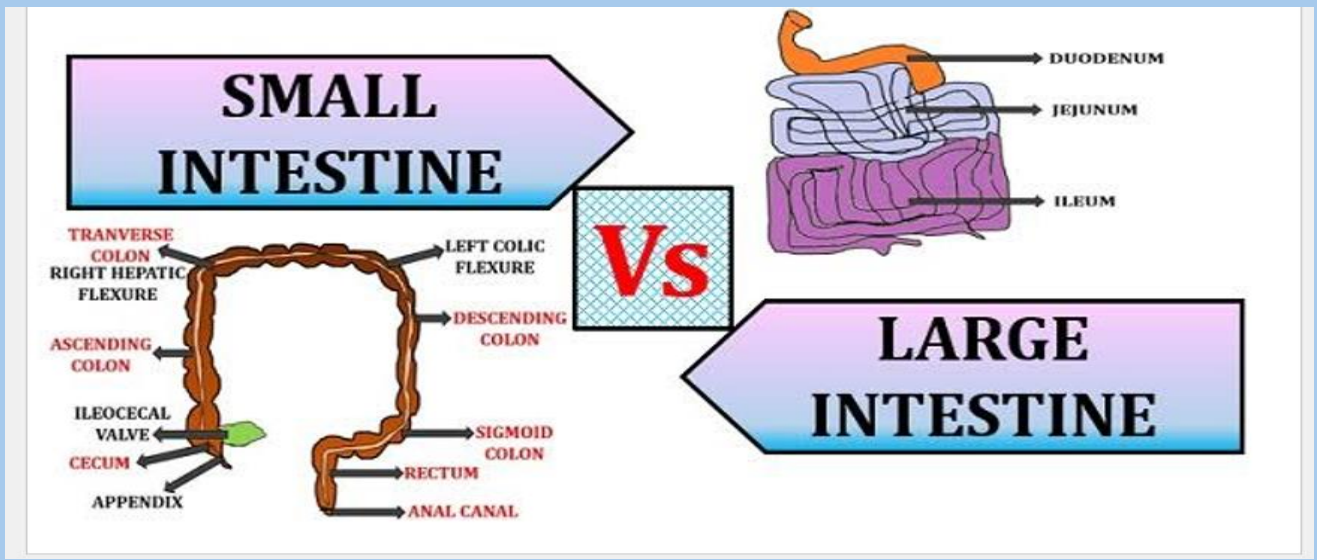
6. Large intestine:

- It measures about 1.5 meters in length.
- It lies in the periphery of the abdominal cavity surrounding the small intestine.
- It is characterized by the presence of sacculations.
- It includes the cecum, vermiform appendix, ascending colon, right colic flexure, transverse colon, left colic flexure, descending colon, pelvic (sigmoid) colon, rectum and anal canal.

Differences between small & large Intestine

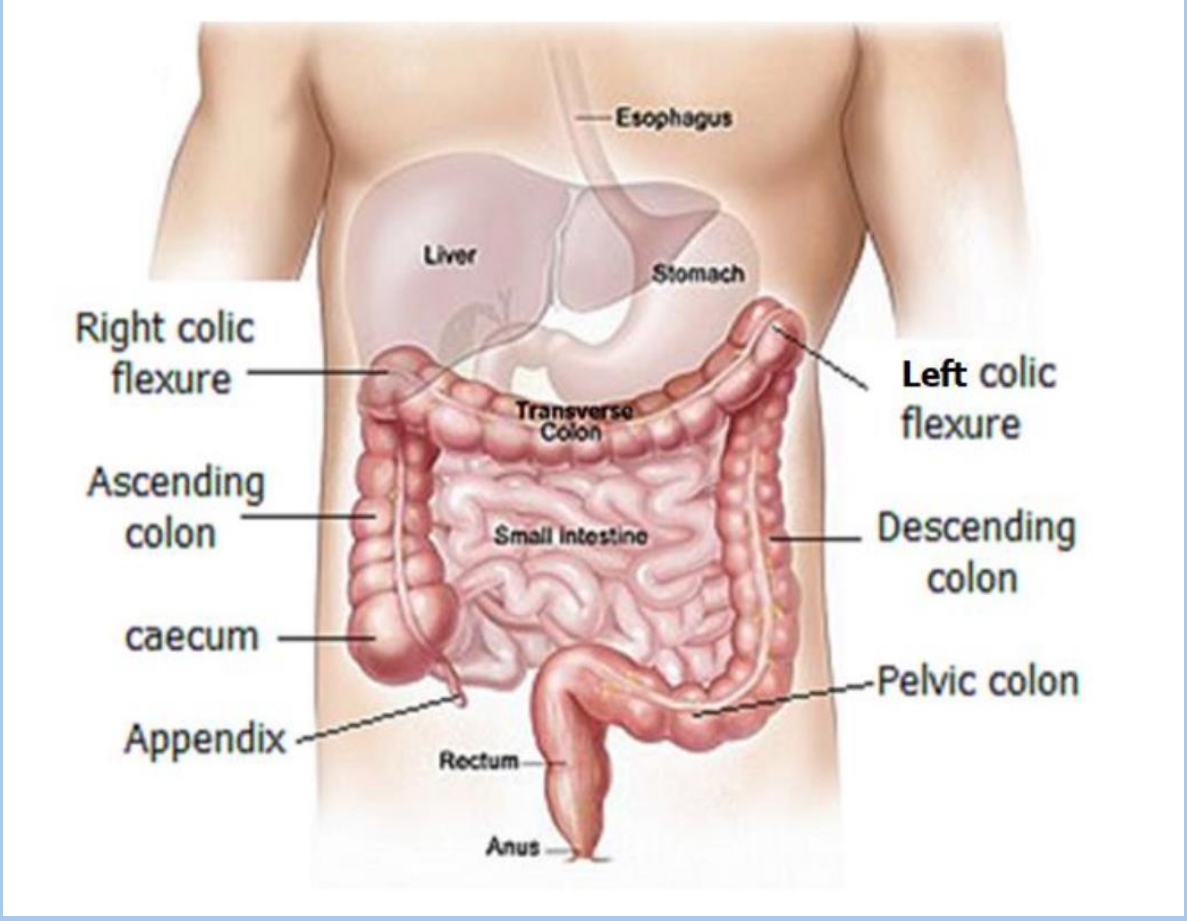
LARGE INTESTINE	SMALL INTESTINE
Wider **caliber and shorter** 1.5 meter	**Narrower** and **longer** 6 meters
Greater part is **fixed**.	Greater part is **mobile.**
Villi are absent	**Villi** are present
Appendices epiploicae except in Caecum. Vermiform appendix & Rectum.	**No**
Tinea coli are present	**No**
Hustrations .as the length of tinea coli is shorter than the colon length.	**No**

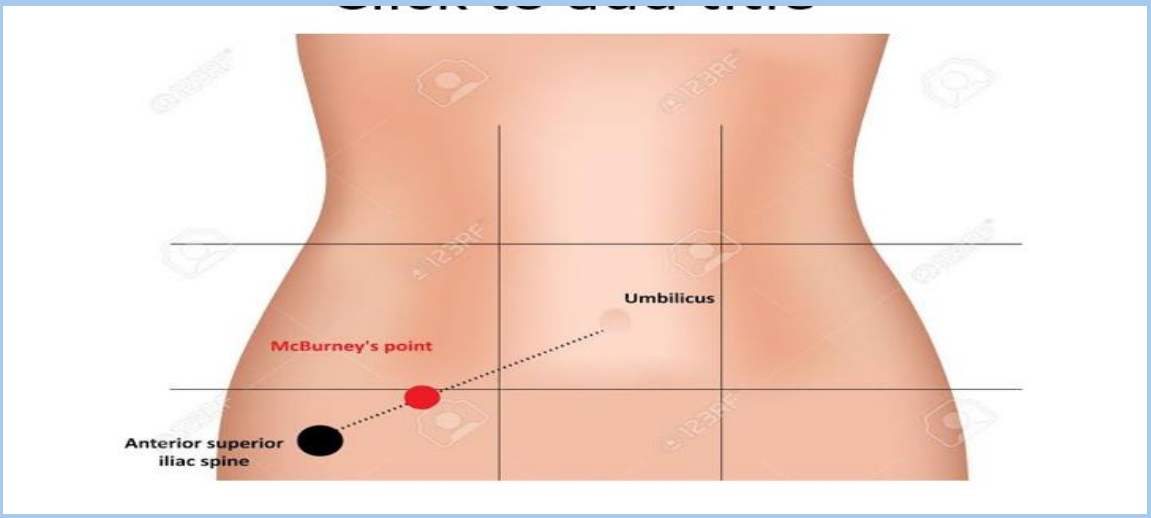




The appendix lies in the right iliac region,

and in relation to anterior abdominal wall its base is situated one-third of the way up the line joining the right anterior superior iliac spine to the umbilicus (McBurney's point).





7. Liver:

- It is the largest gland in the body.

it weighs about 1.5 kg.

Site & Position:-

It lies in the right upper part of the abdominal cavity (Occupies the whole right hypochondrium, greater part of epigastrium & extends to the left hypochondrium)

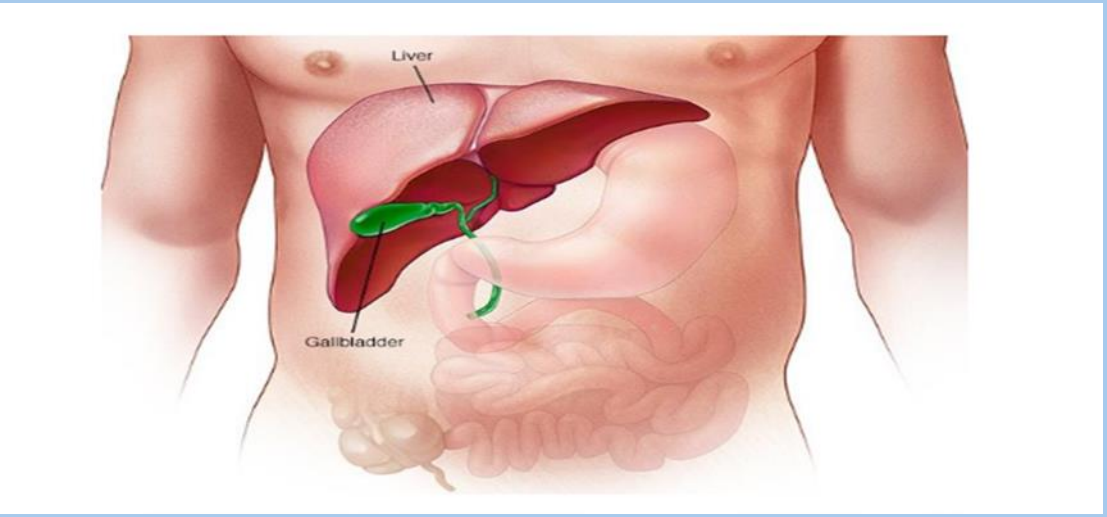
It lies under the right copula of the diaphragm.

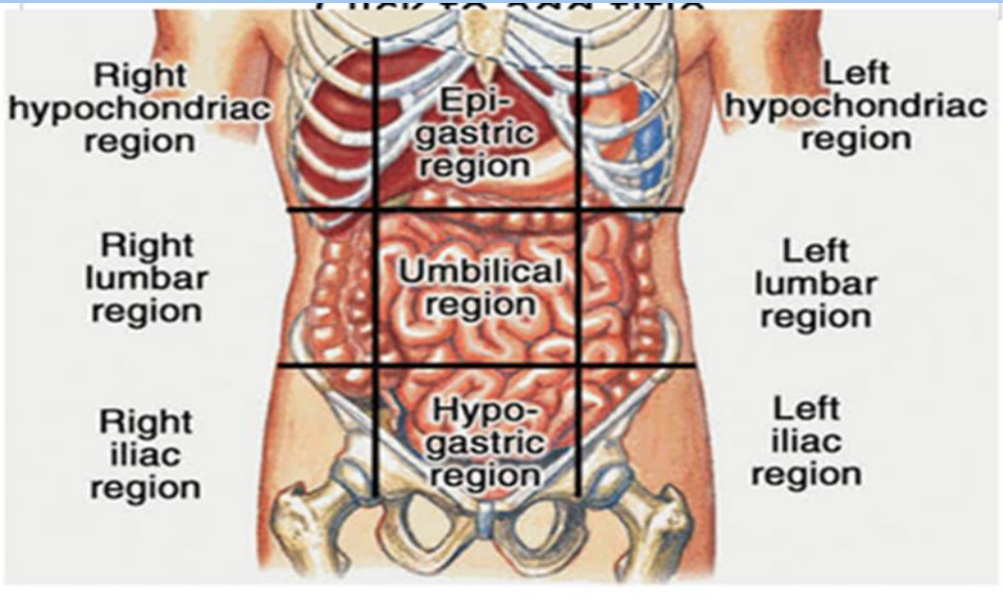
It is formed of 2 large lobes right and left

Liver surfaces:

Diaphragmatic surface: the anterosuperior surface of the liver

Visceral surface: the posteroinferior surface of the liver



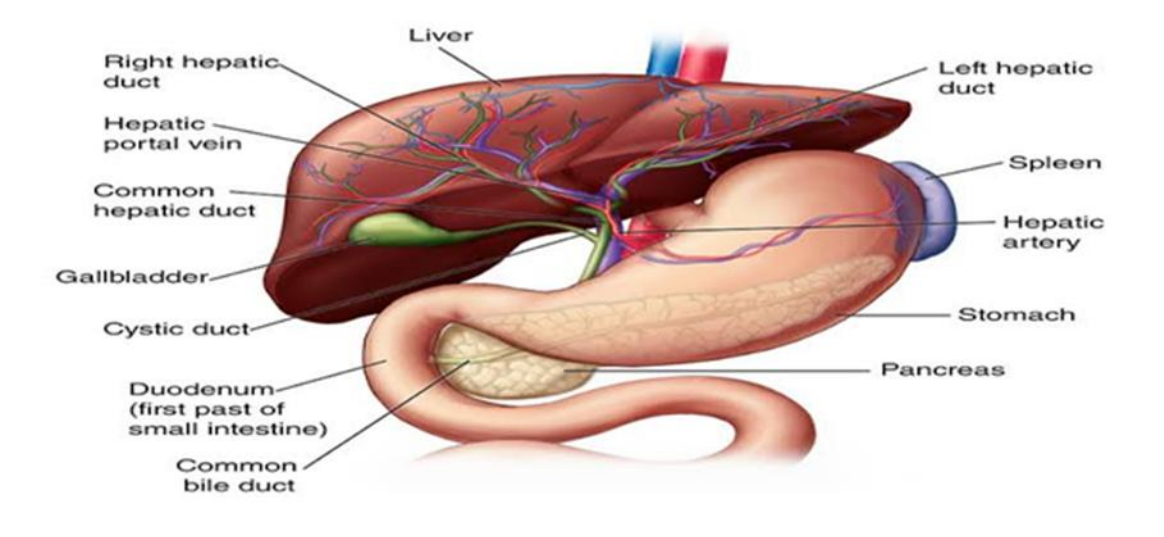


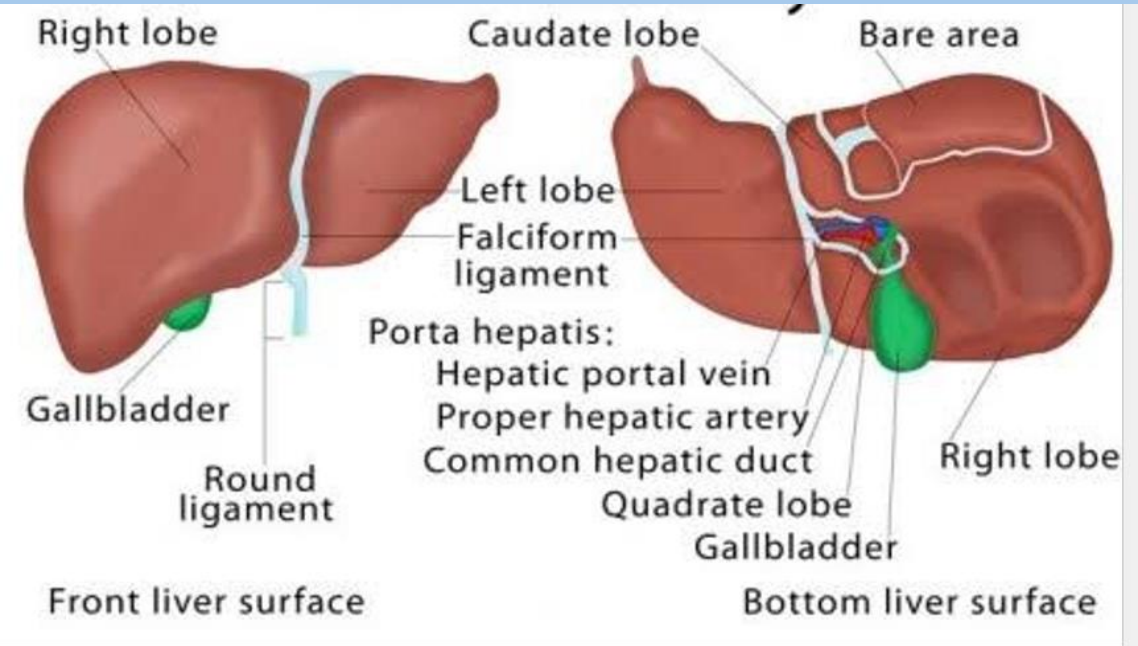
- It has the following functions:

1. Secretes bile (which is important for fat digestion).

2. Synthesis of some substances (e.g.: albumin and clotting factors).

3. Detoxifies several metabolites (e.g.: bilirubin and estrogen).





Extrahepatic biliary apparatus

Parts:-

1- Right & left hepatic ducts

2- Common hepatic duct

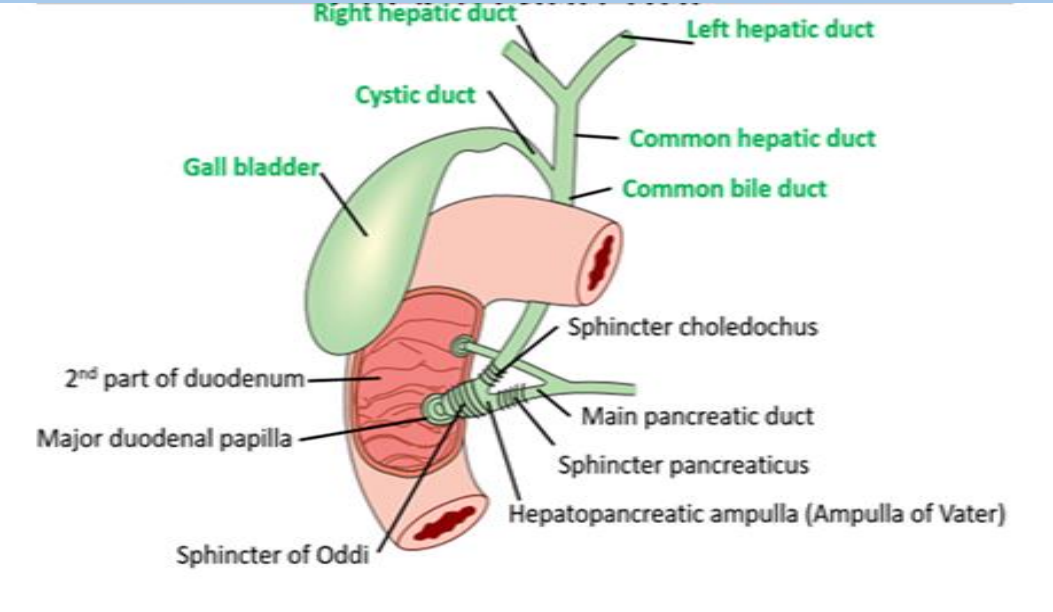
3- Gall bladder

4- Cystic duct

5- Bile duct

Gall bladder:

- It is a small pear-shaped sac located at the inferior surface of the liver.
- It stores and concentrates bile.
- Then bile passes through its duct to reach the duodenum



8-Pancreas:

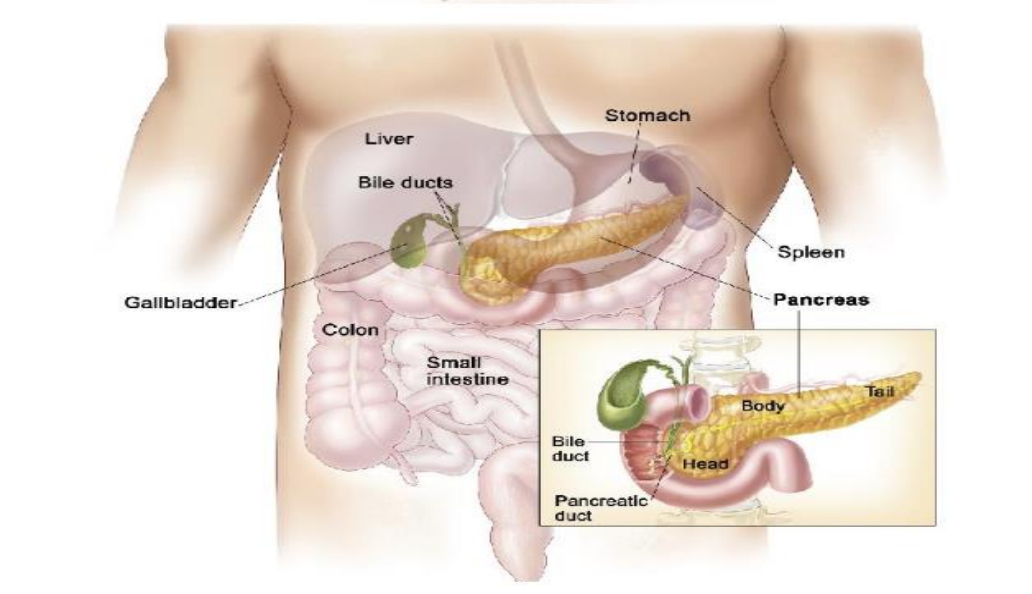
- It is a soft lobulated organ which lies transversely across the posterior abdominal wall.
- It consists of head, neck, body and tail.
- It has 2 functions:

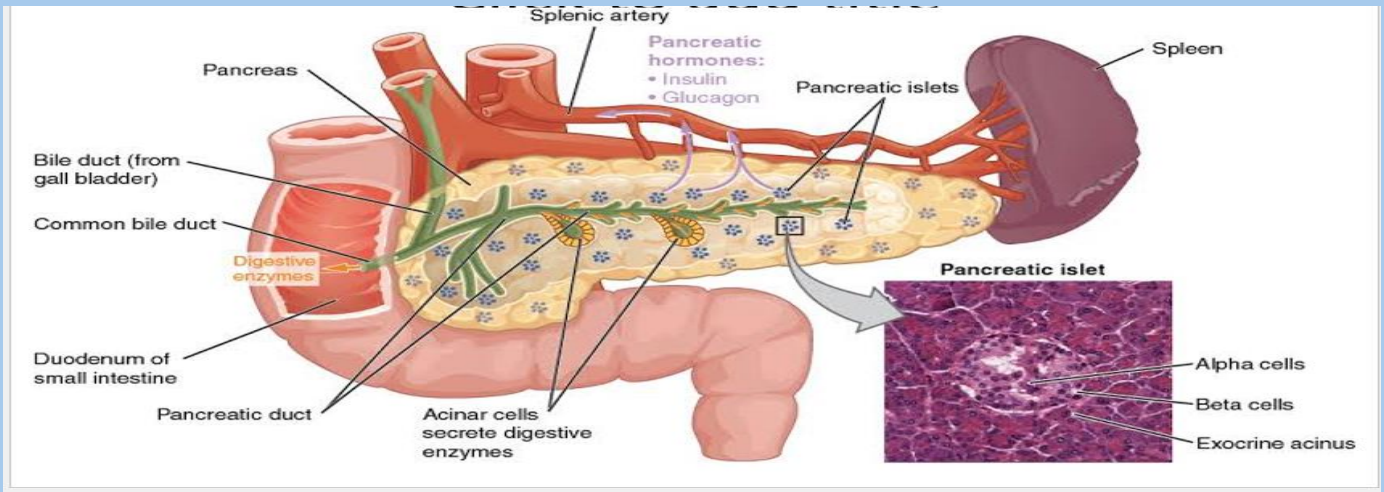
1. Endocrine function: secretes insulin and glucagon hormones which regulate the blood glucose level.

2. Exocrine function: secretes pancreatic enzymes which pass to the duodenum through the pancreatic duct.

The functional unit of exocrine pancreas includes the acinus and its duct system

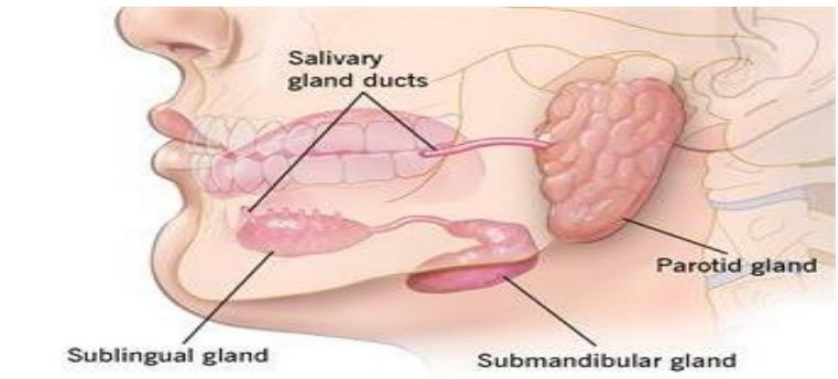
The main pancreatic duct merges with bile duct, which leads to Ampulla of Vater. It is here that these secretions pour into the duodenum and help neutralizes and digest chyme.


Stomach
Liver
Bile ducts
Spleen
Gallbladder
Pancreas
Colon
Small intestine
Body
Tail
Bile duct
Head
Pancreatic duct


Splenic artery
Pancreatic hormones:
• Insulin
• Glucagon
Spleen
Pancreas
Pancreatic islets
Bile duct (from gall bladder)
Common bile duct
Digestive enzymes
Pancreatic islet
Duodenum of small intestine
Alpha cells
Beta cells
Pancreatic duct
Acinar cells secrete digestive enzymes
Exocrine acinus

9. Salivary Glands: there are 3 pairs of salivary glands.

	Parotid	Submandibular	Sublingual
Site	Side of the face behind the mandible	Below the mandible	Floor of the mouth
Size	The largest	In between	The smallest
Termination of its duct	Vestibule of the mouth	Floor of the mouth	Floor of the mouth
Secretion	Watery	Viscid	Viscid



Parotid glands

- The two parotid glands are major salivary glands.
- It has taken from two words: **Par=near, otid=ear**
- It is the **largest** salivary gland, which secrete saliva
- It enters the oral cavity via the **parotid duct** (**Stensen duct**).

Submandibular glands

- The submandibular glands (previously known as submaxillary glands) are a pair of major salivary glands located beneath the lower jaws, superior to the digastric muscles.

submandibular duct or **Wharton duct**.

Sublingual glands

- The sublingual glands are a pair of major salivary glands located inferior to the tongue, anterior to the submandibular glands.