

ORGAN STRUCTURE AND FUNCTION

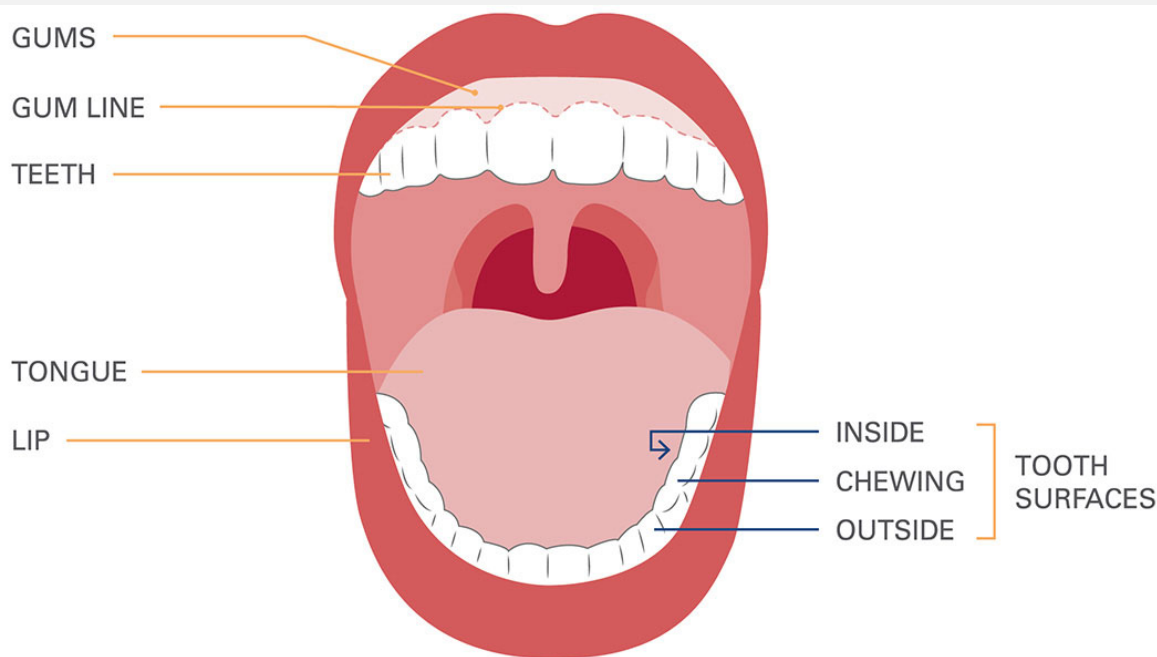
Outcome:

-BII-2-01: Identify major structures and functions of the human digestive system from a diagram, model, or specimen. (GLO: DI) Include: tongue, teeth, salivary glands, epiglottis, esophagus, pharynx, sphincters, stomach, small intestine, large intestine, rectum, anus, appendix, liver, gallbladder, pancreas, and uvula

MOUTH

STRUCTURE

- Located on face
- includes **lips, teeth, tongue**



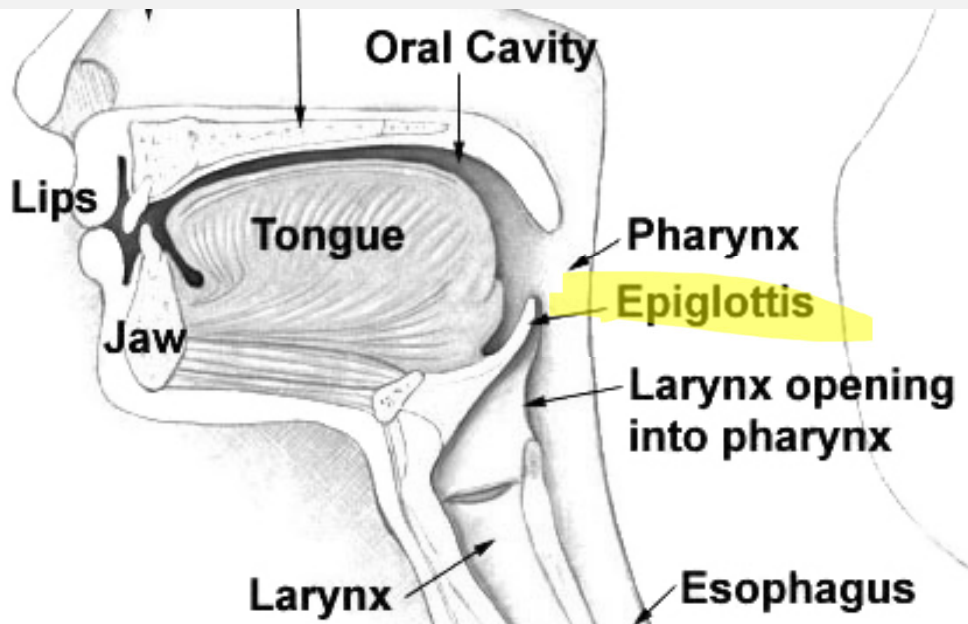
FUNCTION

- To mechanically breakdown food
- Chemical digestion of carbohydrates begins with the help of saliva

PHARYNX

STRUCTURE

- Located at the back of the **mouth**
- Location of the **epiglottis**



FUNCTION

- Connects mouth to esophagus.
- Location of **epiglottis**, which blocks off the trachea when swallowing.

ESOPHAGUS

STRUCTURE

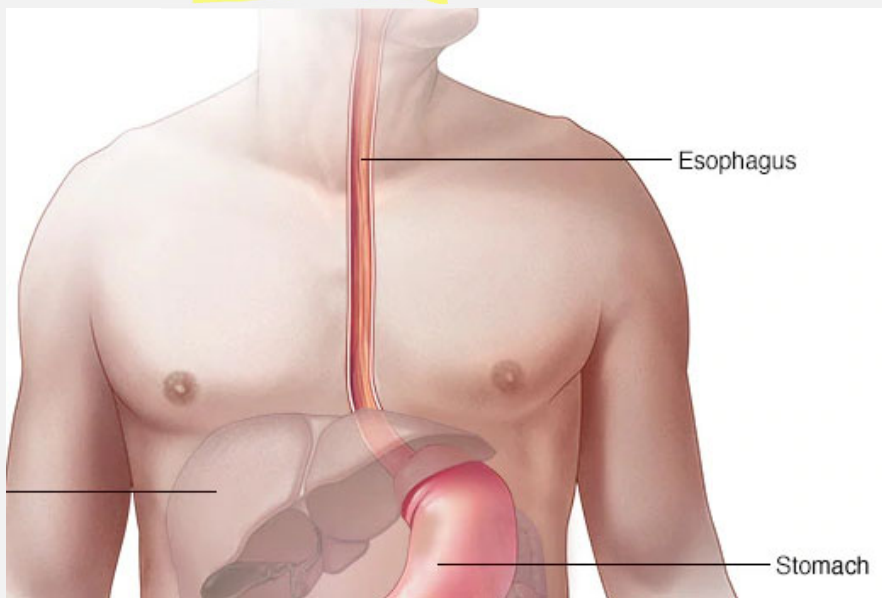
- Long tubular structure that connects **pharynx to stomach**
- Has **muscular** walls

FUNCTION

- Sends swallowed bolus to the stomach through **peristalsis**

wave-like motion ←

- **Bolus**: soft mass of chewed food
- **Peristalsis**: involuntary muscular contractions that pushes bolus towards the stomach



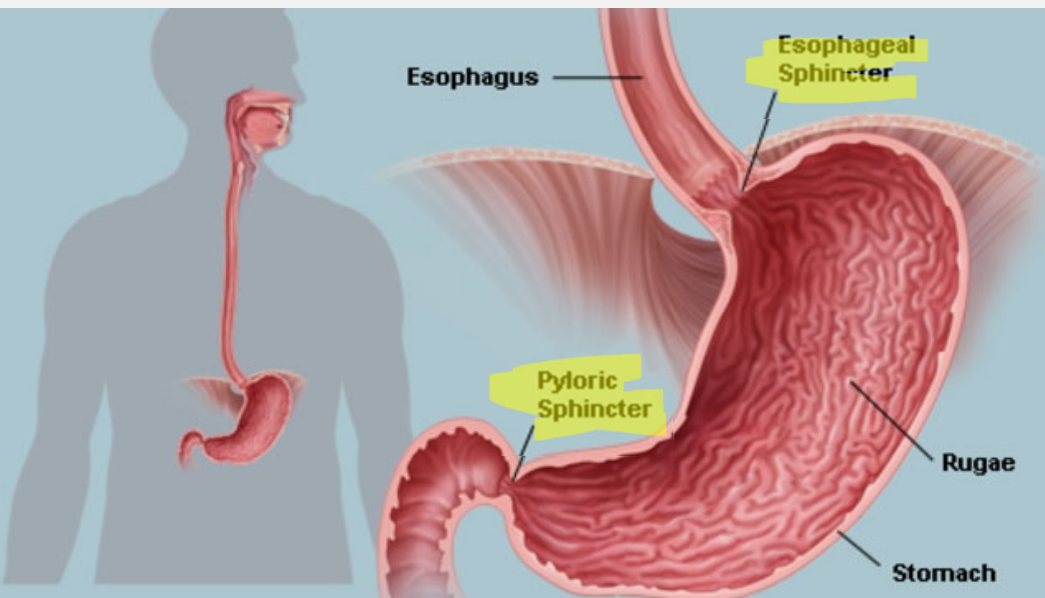
STOMACH

STRUCTURE

- J shaped, pouch like organ.
- **Rugae** are the folds of the inner lining (helps churn)

FUNCTION

- Mechanical digestion: **mixes or churns** food with secretions
- Chemical digestion: secretes acid (**HCl**) and enzymes (**pepsin**) to digest proteins.
- Secretes **mucous** to protect lining from HCl



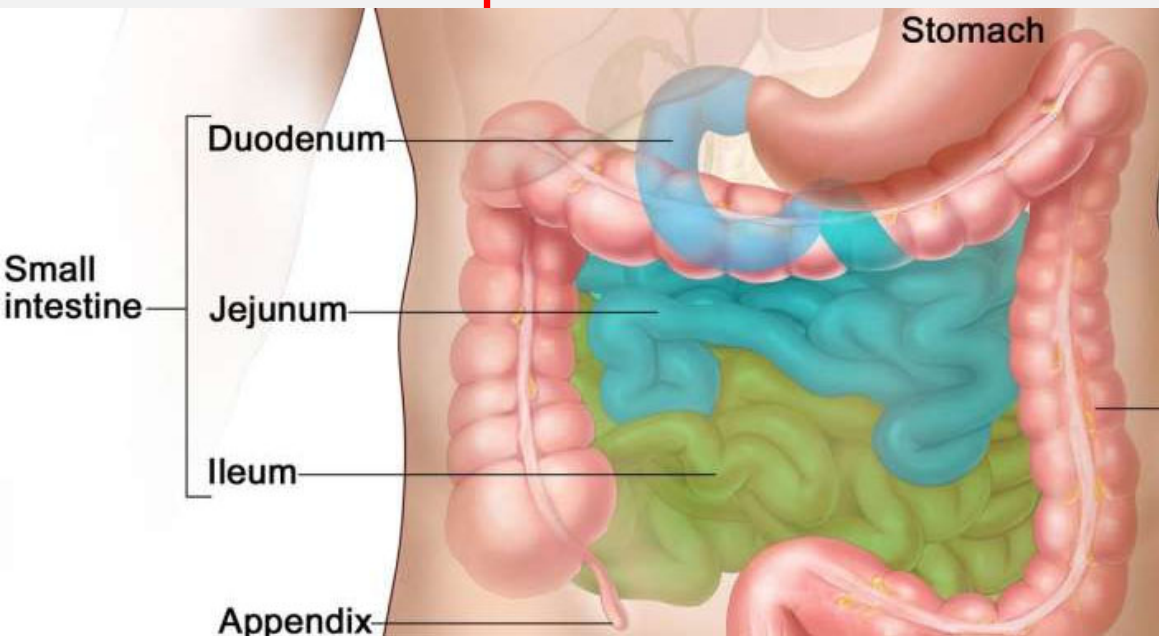
SMALL INTESTINE

STRUCTURE

- 3 parts: duodenum, jejunum, ileum
- **Villi** line the walls, increasing surface area for absorption

FUNCTION

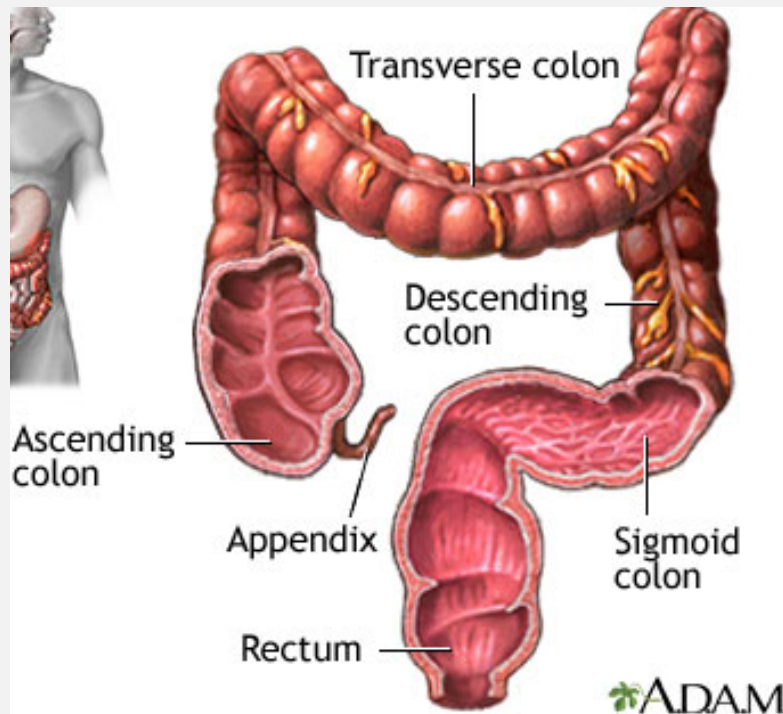
- Chemical digestion: mixes food with **bile** and **pancreatic juice**
- Enzymes break down food molecules
 - **Maltase, sucrase, lactase, peptidase, nuclease**
- Main site of absorption



LARGE INTESTINE

STRUCTURE

- 6 parts: cecum, a, t, d, and s colons, rectum
- Is tubular, with 'pouch-like' structure
- Pouches called *haustra*

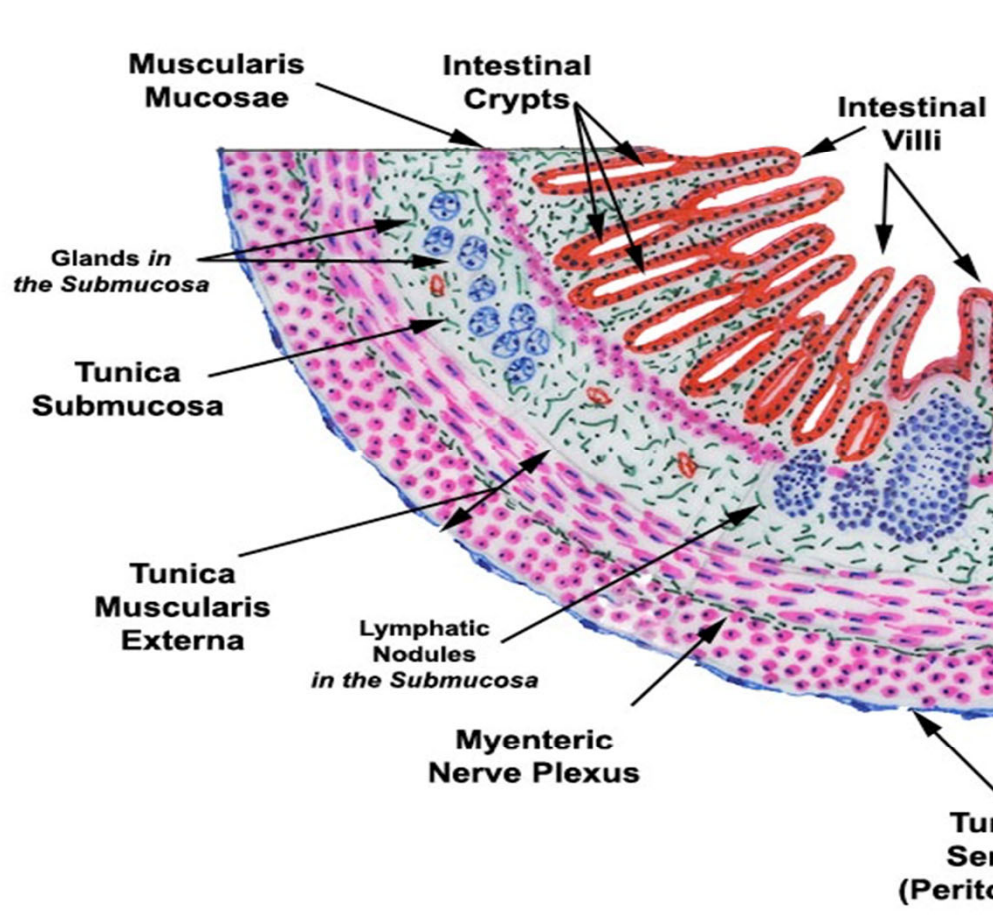


FUNCTION

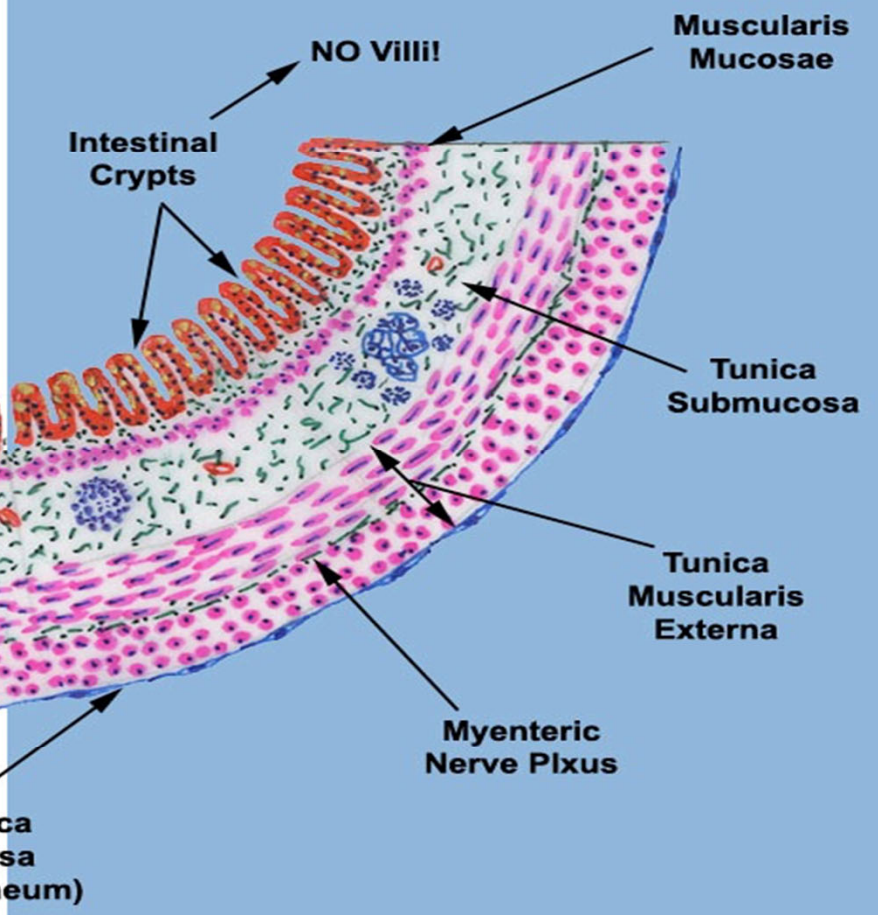
- Absorbs **water and electrolytes**
- Forms feces

- Note: appendix is attached at cecum, and has no known digestive function in humans

SMALL INTESTINE



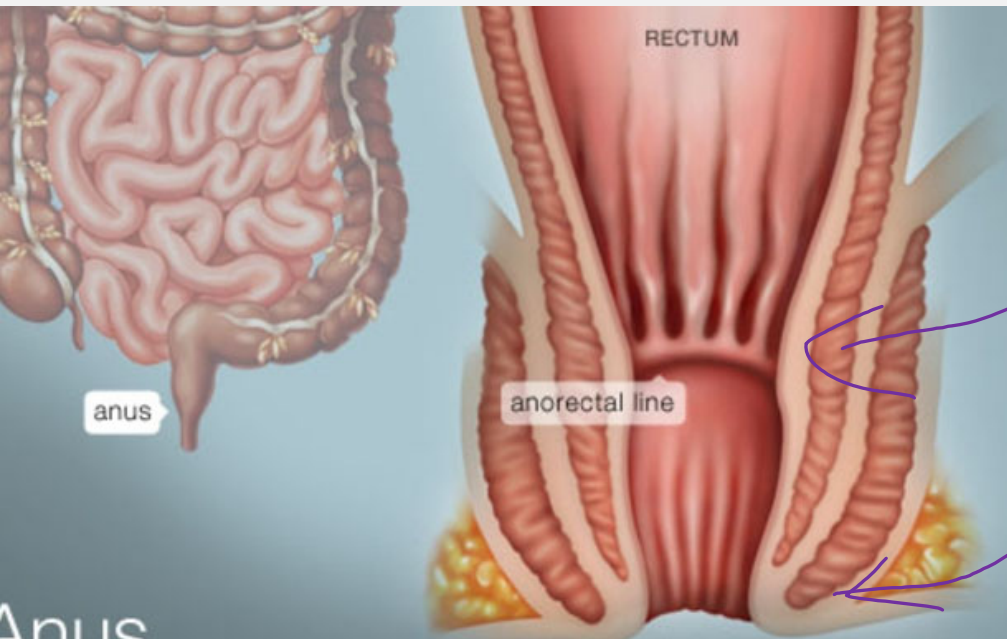
LARGE INTESTINE



ANUS

STRUCTURE

- Canal with muscles and **sphincters**



FUNCTION

- **Internal** sphincter separates rectum from anus
- **External** sphincter controls bowel movements

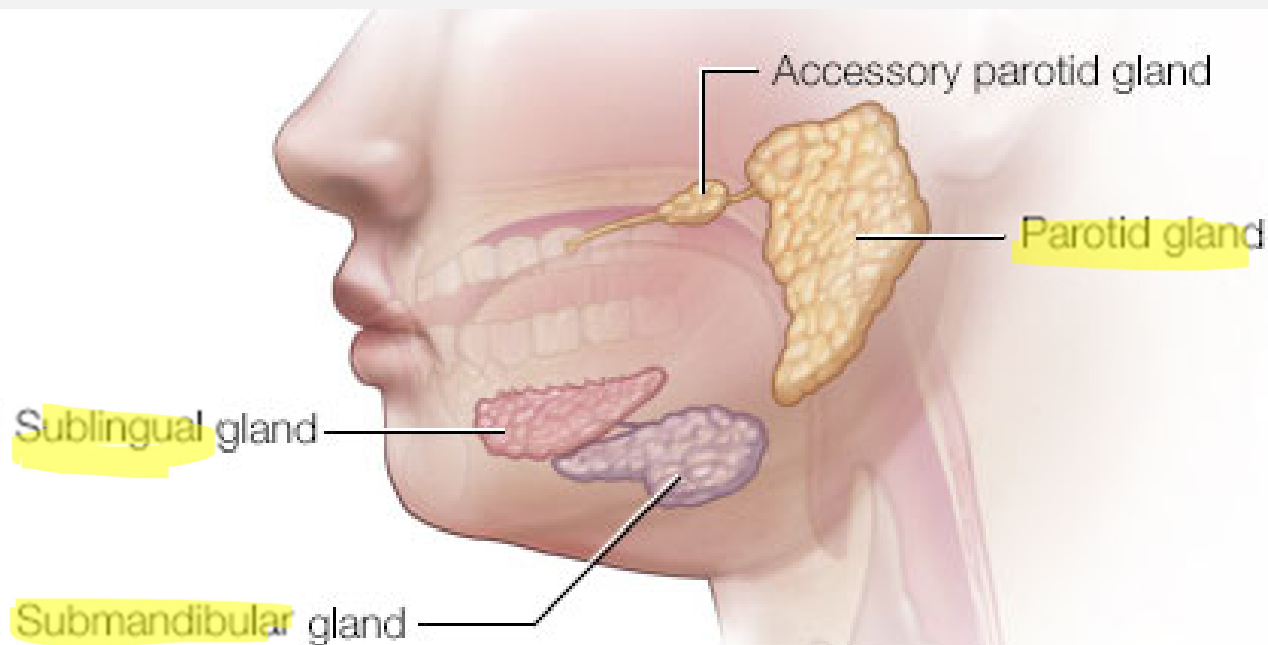
ACCESSORY ORGANS!

- Note directly part of the GI tract, but connect in with ducts
- They are still very important to the process of digestion!

SALIVARY GLANDS

STRUCTURE

- 3 groups: **sublingual**, **submandibular**, **parotid**



FUNCTION

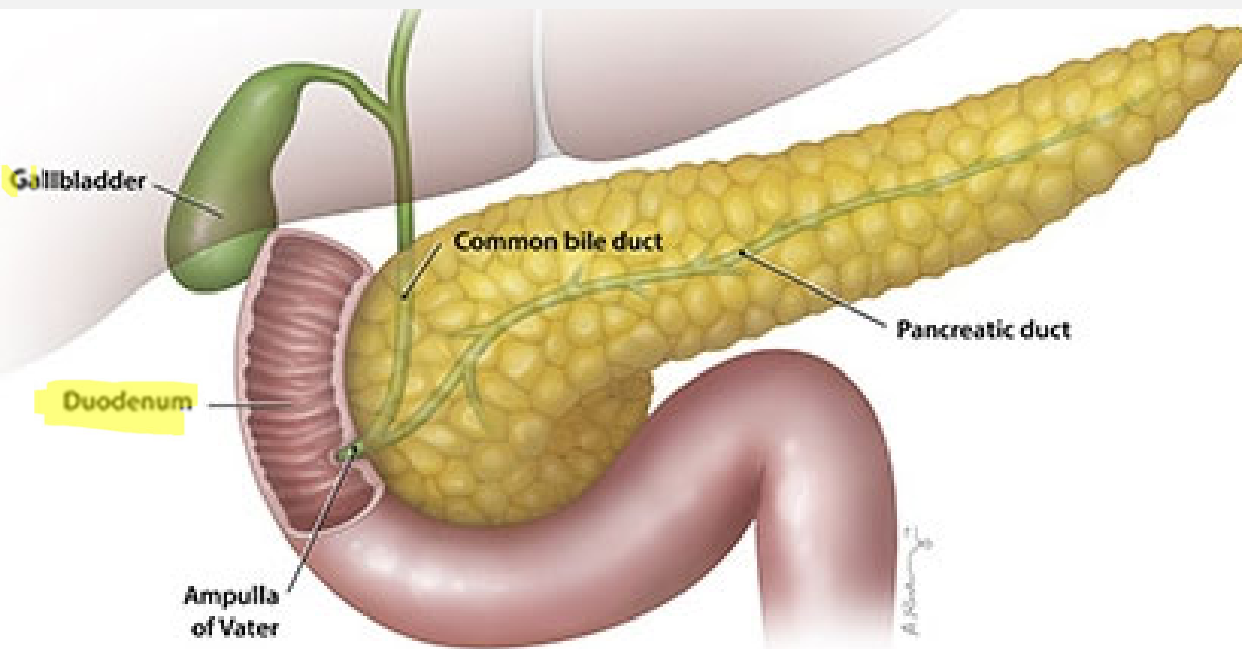
- Secrete **saliva** that lubricates chewing and contains **amylase**, which begins to break down carbohydrates/starch into **maltose**

↳ **sugar**

PANCREAS

STRUCTURE

- Located 'under' liver, and runs horizontally



FUNCTION

- Produces and secretes pancreatic juice into the small intestine *duodenum*
- Pancreatic juice contains the enzymes:
 - **Pancreatic amylase**
 - **pancreatic lipase**
 - **Proteases:** trypsin, chymotrypsin, carboxypeptidase

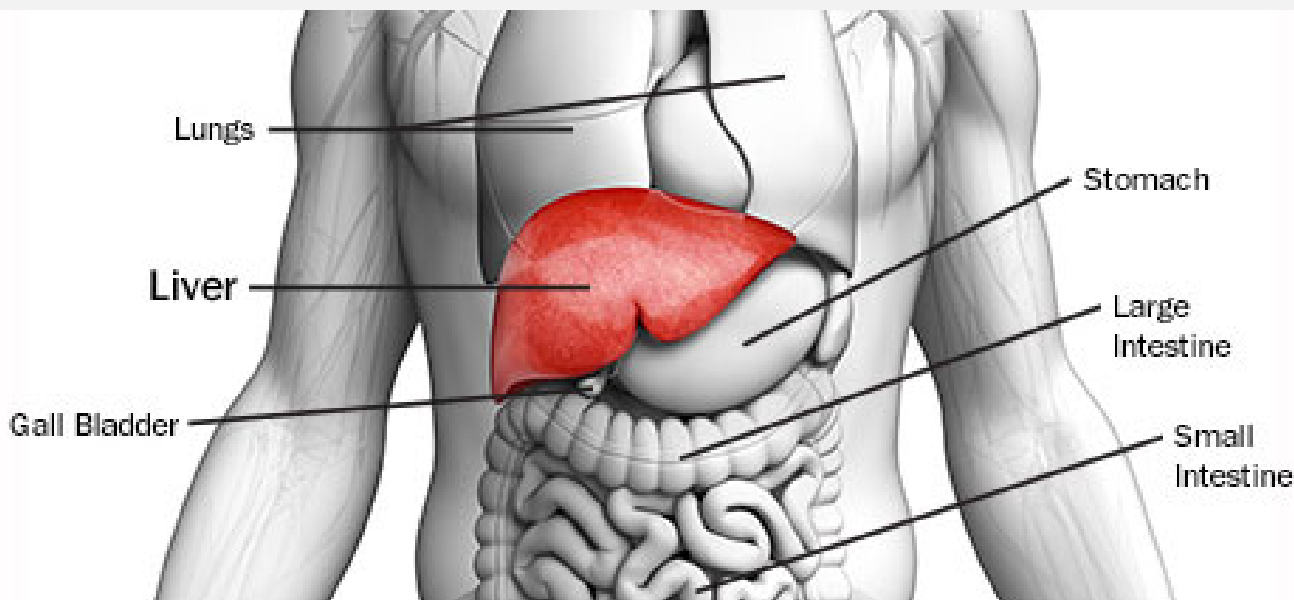
LIVER

STRUCTURE

- **Lobular** organ located around stomach.

FUNCTION

- Produces **bile** which **emulsifies fat** and **neutralizes stomach acid**



GALL BLADDER

STRUCTURE

- **Pear shaped** organ located 'under' liver

FUNCTION

- Stores **bile** and introduces it into the small intestine

