

Digestive System in Humans



The Digestive System

What is a digestive system?

- The digestive system is a group of organs working together to convert food into energy and basic nutrients to feed the entire body.
- The food passes through a long tube inside the body known as alimentary canal or gastrointestinal tract or GI Tract.

How does the human digestion work?

- The food that we eat travels slowly through our bodies, a journey of upto 10 metres, taking about two days.
- As it passes through the various stages of our digestive system, the chemicals called enzymes act on the food to breakdown different components of it and make them available for the body.
- Anything that cannot be used is passed out through the body via anus.

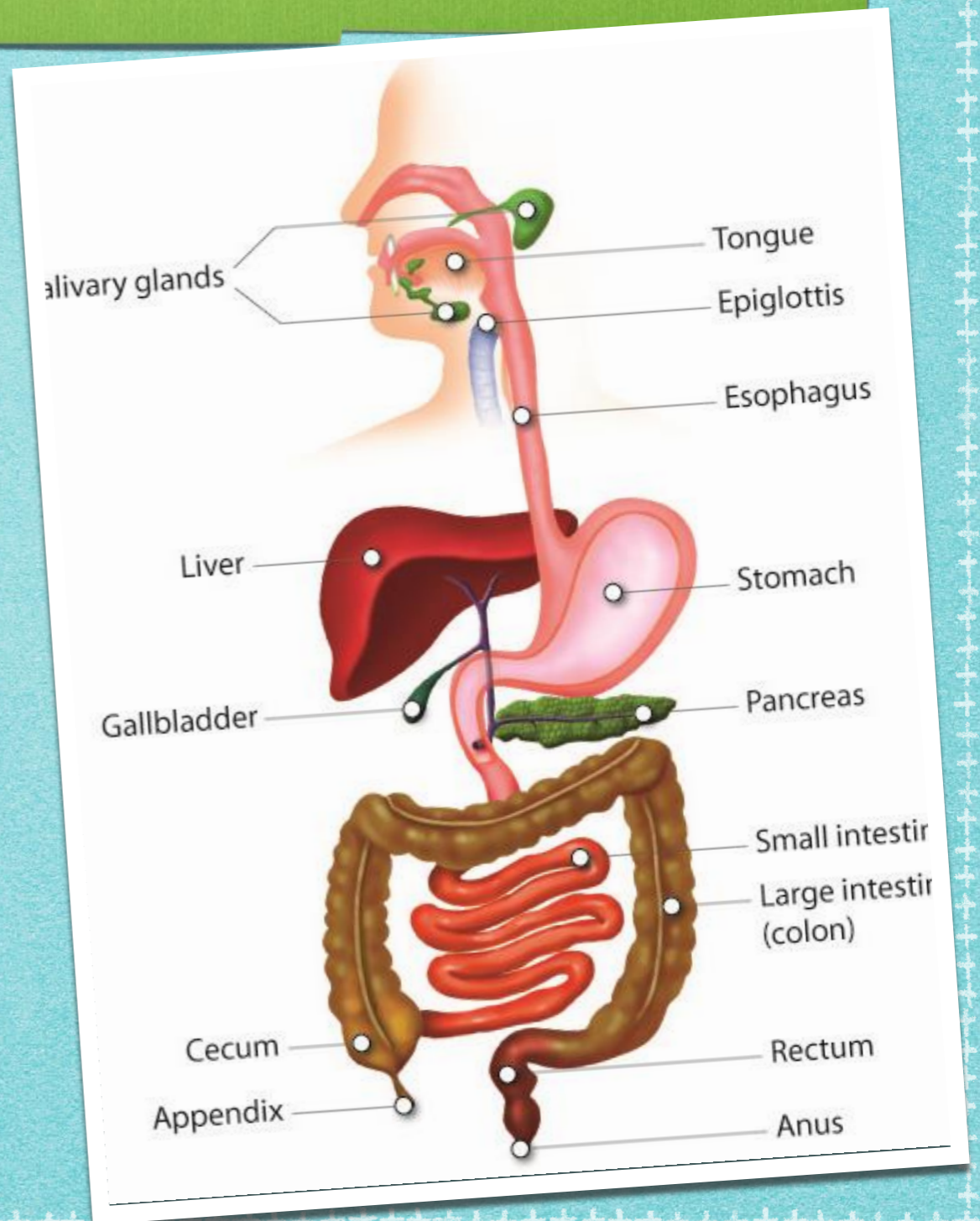
Functions of the digestive system

1. Ingestion of food.
2. Secretion of fluids and digestive enzymes.
3. Mixing and movement of food through the body.
4. Digestion of food into smaller pieces.
5. Absorption and assimilation of nutrients.
6. Excretion of waste.

Organs of the digestive system

- **Major Organs**

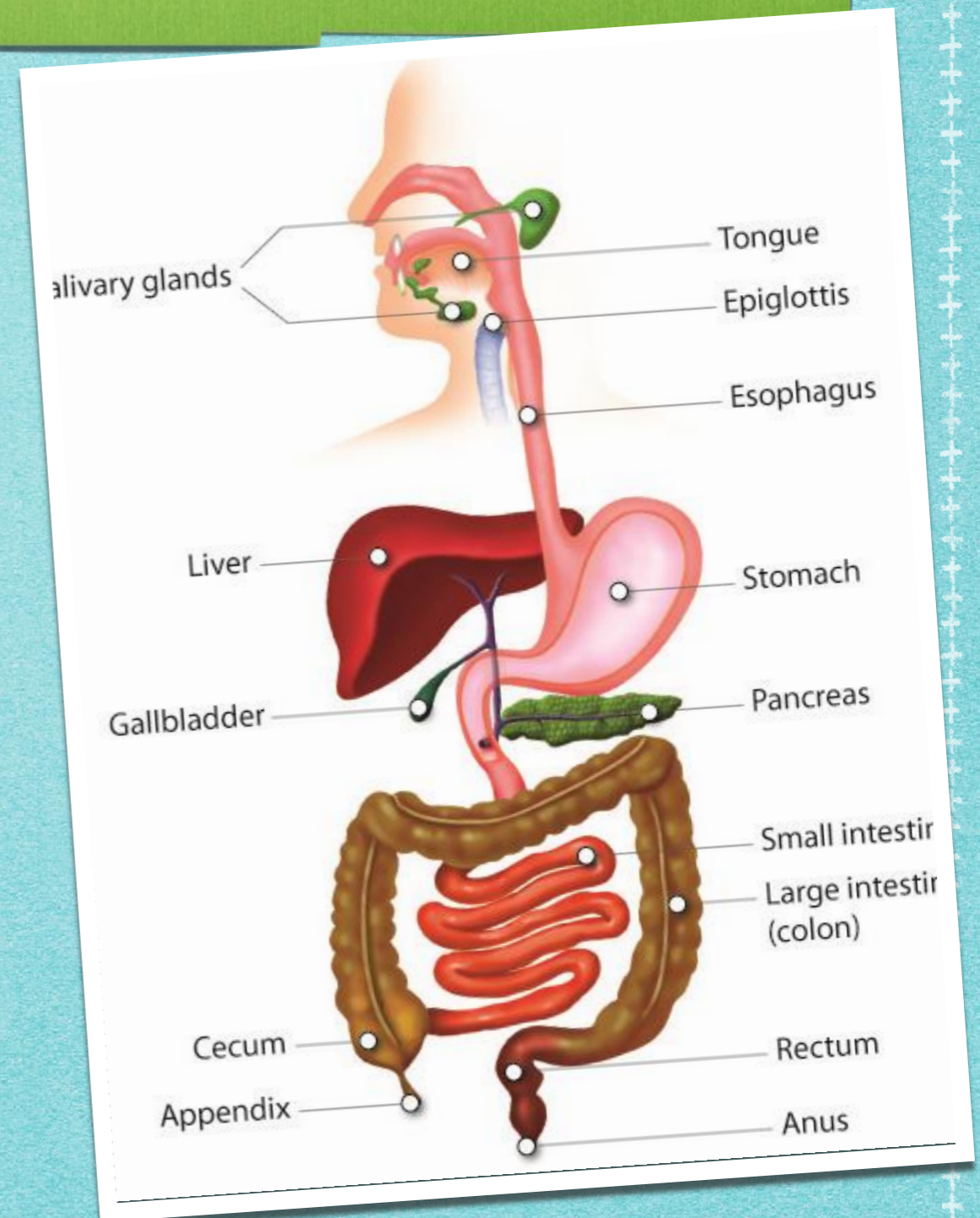
1. Oral Cavity
2. Pharynx
3. Oesophagus
4. Stomach
5. Small Intestine
6. Large Intestine



Organs of the Digestive System

• Accessory Organs

1. Teeth
2. Tongue
3. Salivary Glands
4. Liver
5. Gall Bladder
6. Pancreas



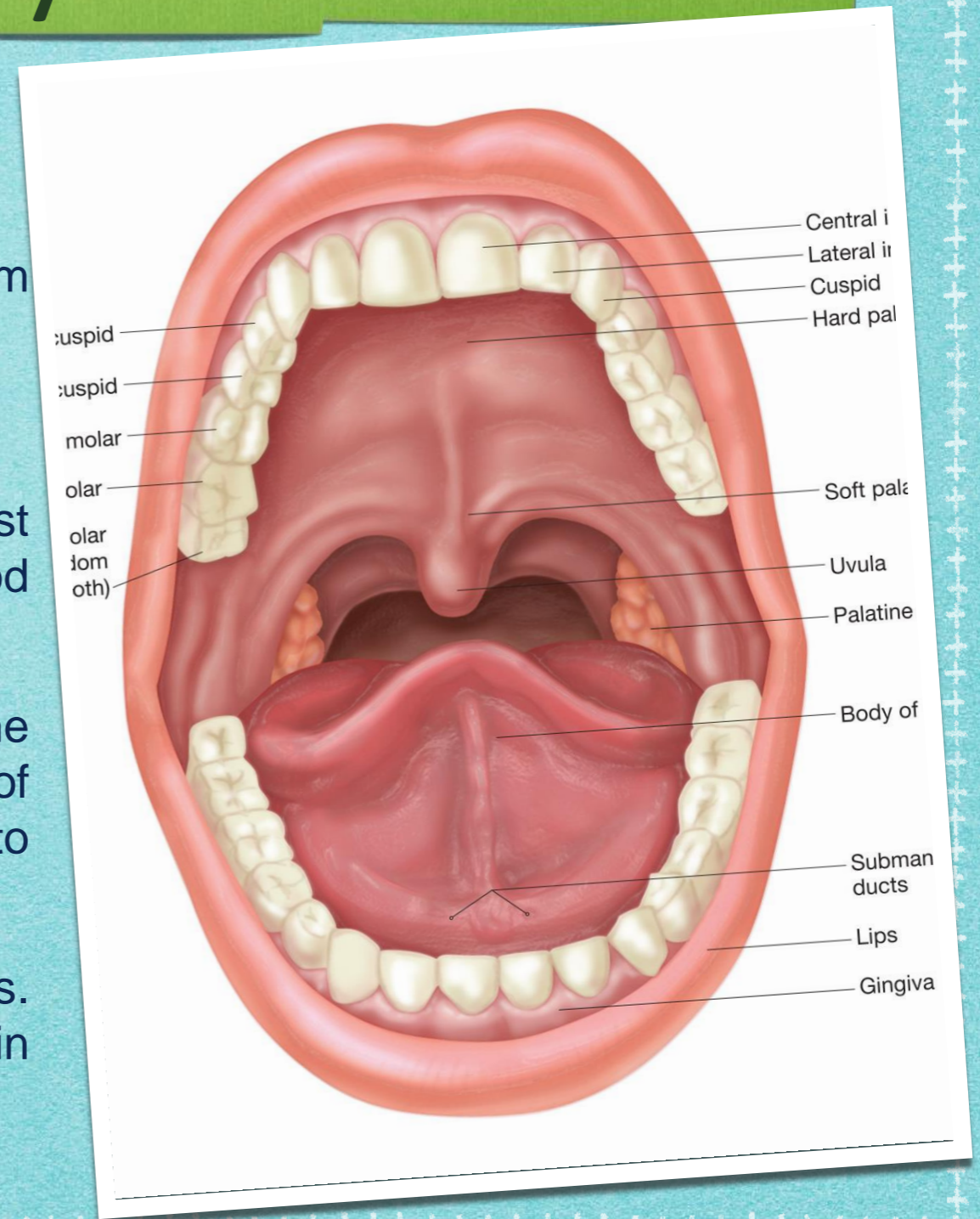
Role of Major Organs of the digestive system.

• Oral Cavity

▶ Food begins its journey through the digestive system in the mouth.

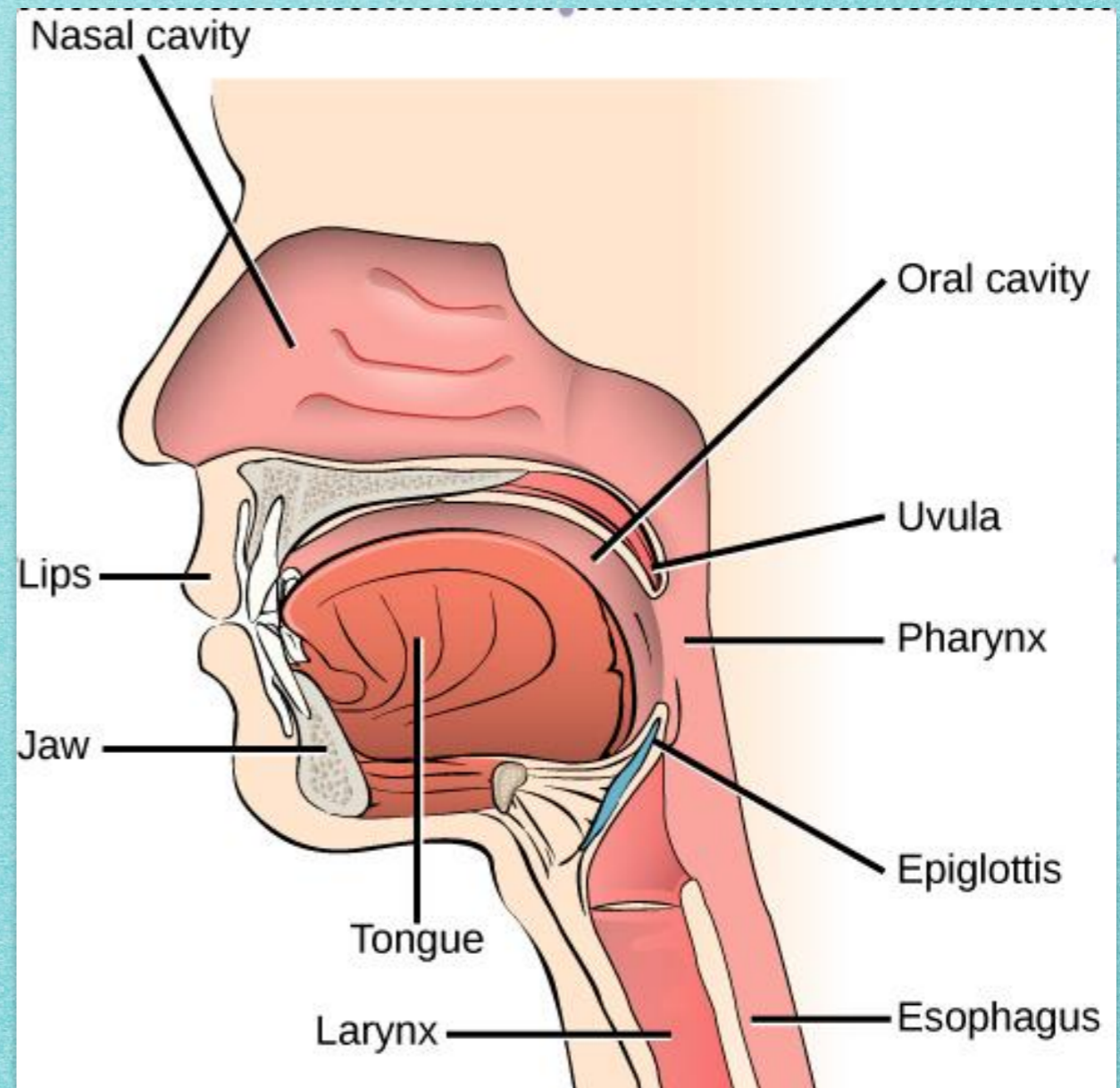
▶ It has 3 components :

1. Teeth - Covered by a layer of enamel, the hardest substance in the body. Teeth chop down the food into small pieces.
2. Tongue - A fleshy muscular organ, with the presence of taste buds on its surface for detection of taste. It also helps to push down the food into posterior part of oral cavity or swallowing.
3. Salivary Glands - Three sets of salivary glands. They produce saliva, moisten the food, and begin the digestion of carbohydrates.



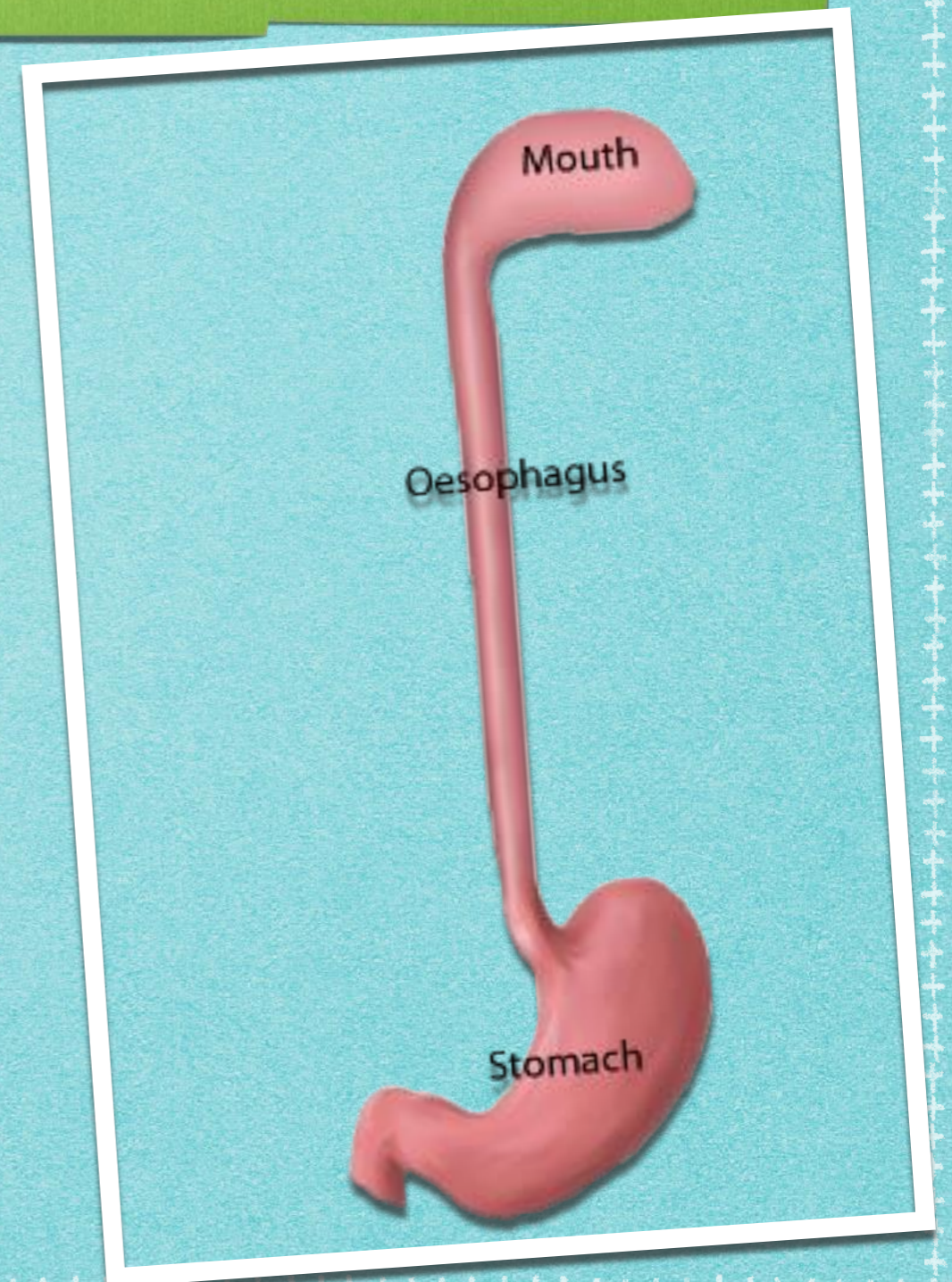
Pharynx

1. It is a passage extending from the ends of nasal and oral cavities upto the oesophagus.
2. Divided into three parts - Nasopharynx, oropharynx and laryngopharynx.
3. Contains a muscular flap called epiglottis near larynx which closes during swallowing thus preventing the entry of food and liquids into the trachea (a.k.a windpipe) thus preventing choking.



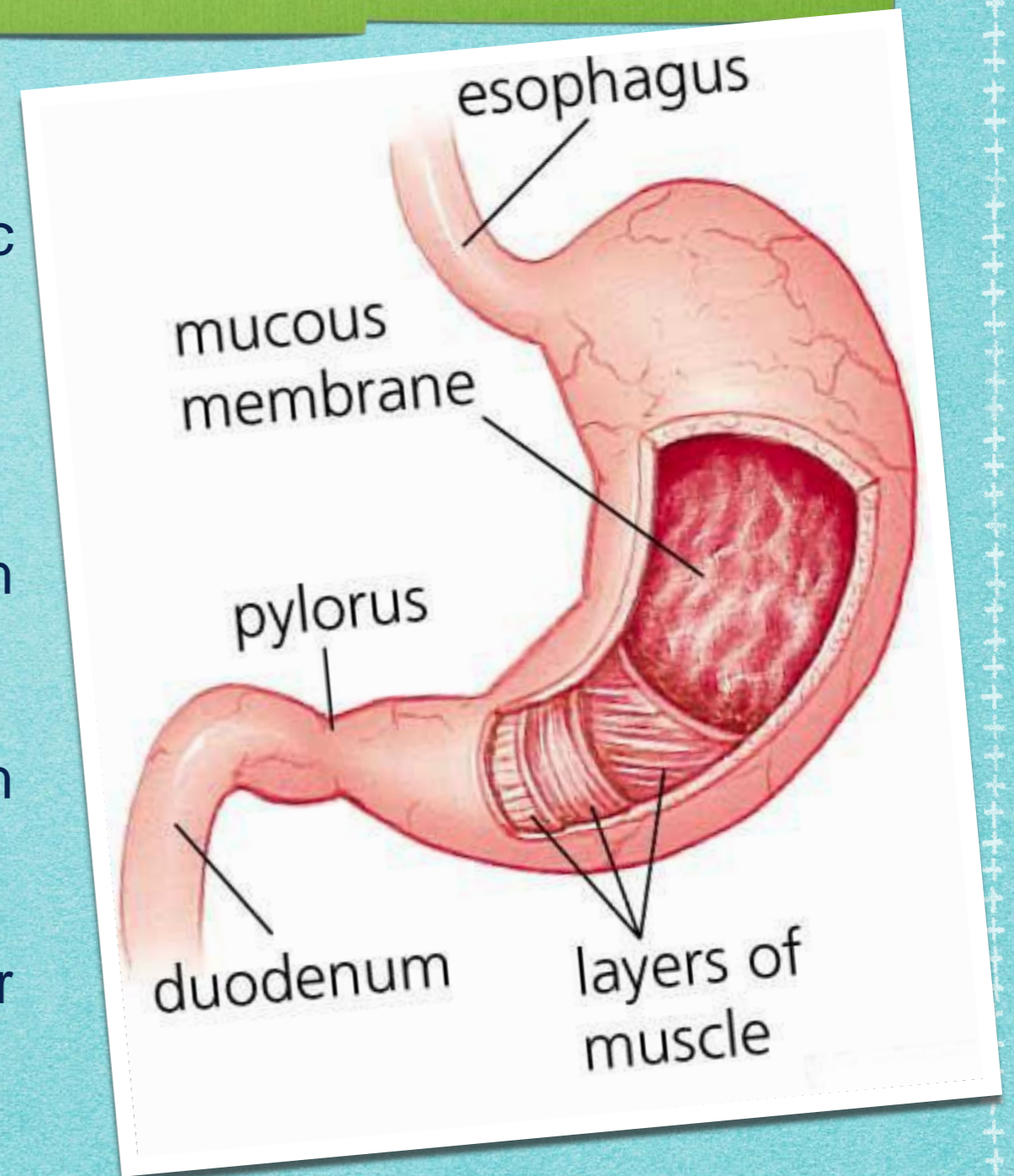
Oesophagus

1. Oesophagus is a narrow muscular tube which connects pharynx to the opening of the stomach.
2. Carries the swallowed food along its length.
3. Pushes the food downward with the help of peristaltic contractions.



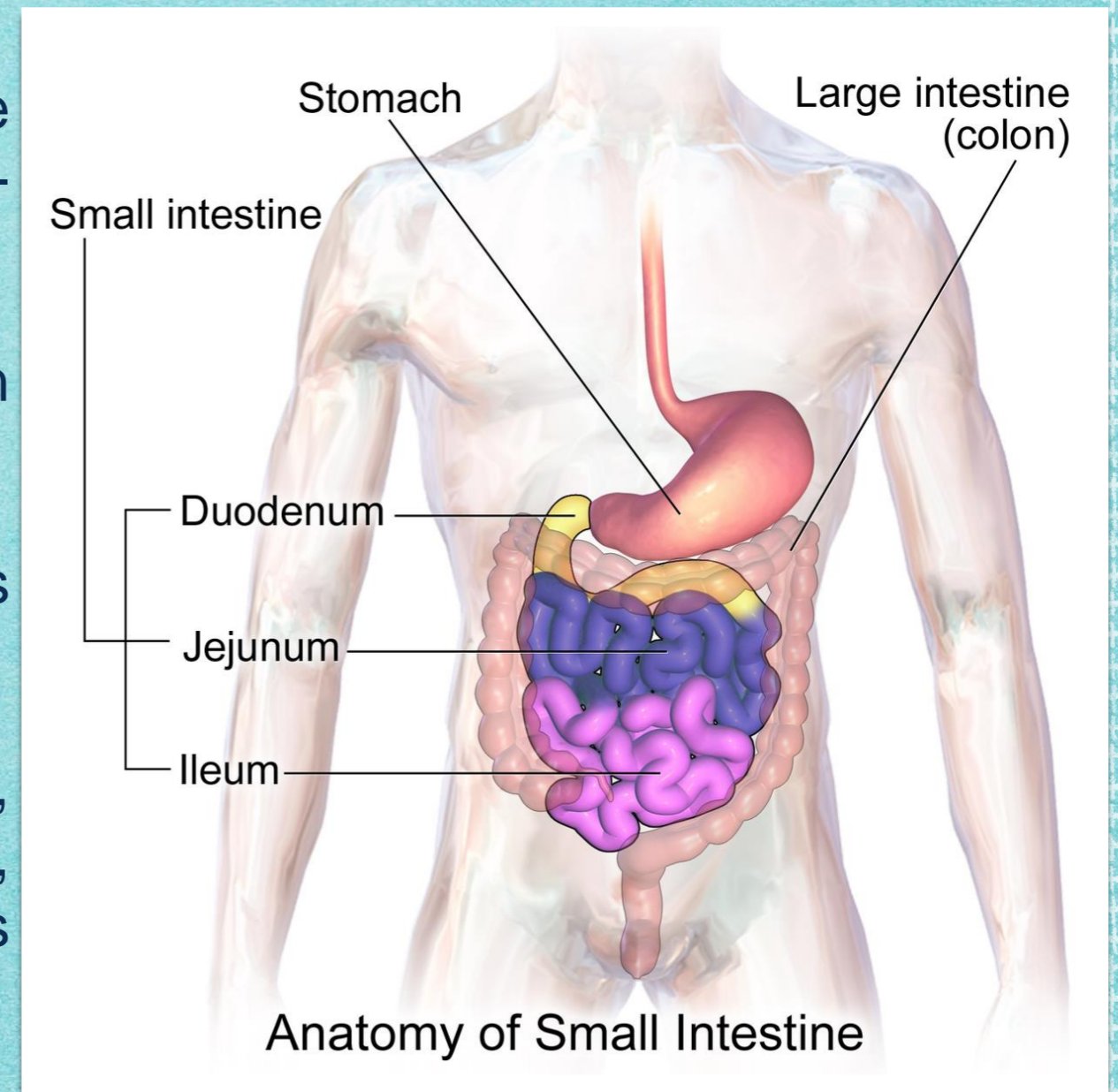
Stomach

1. Stomach is a J-shaped muscular sac which stores and digests food.
2. Partial digestion of food occurs here.
3. The churning action of stomach physically breaks down the food.
4. It secretes gastric juice which chemically breaks down the food.
5. Enzyme pepsin is responsible for protein breakdown.



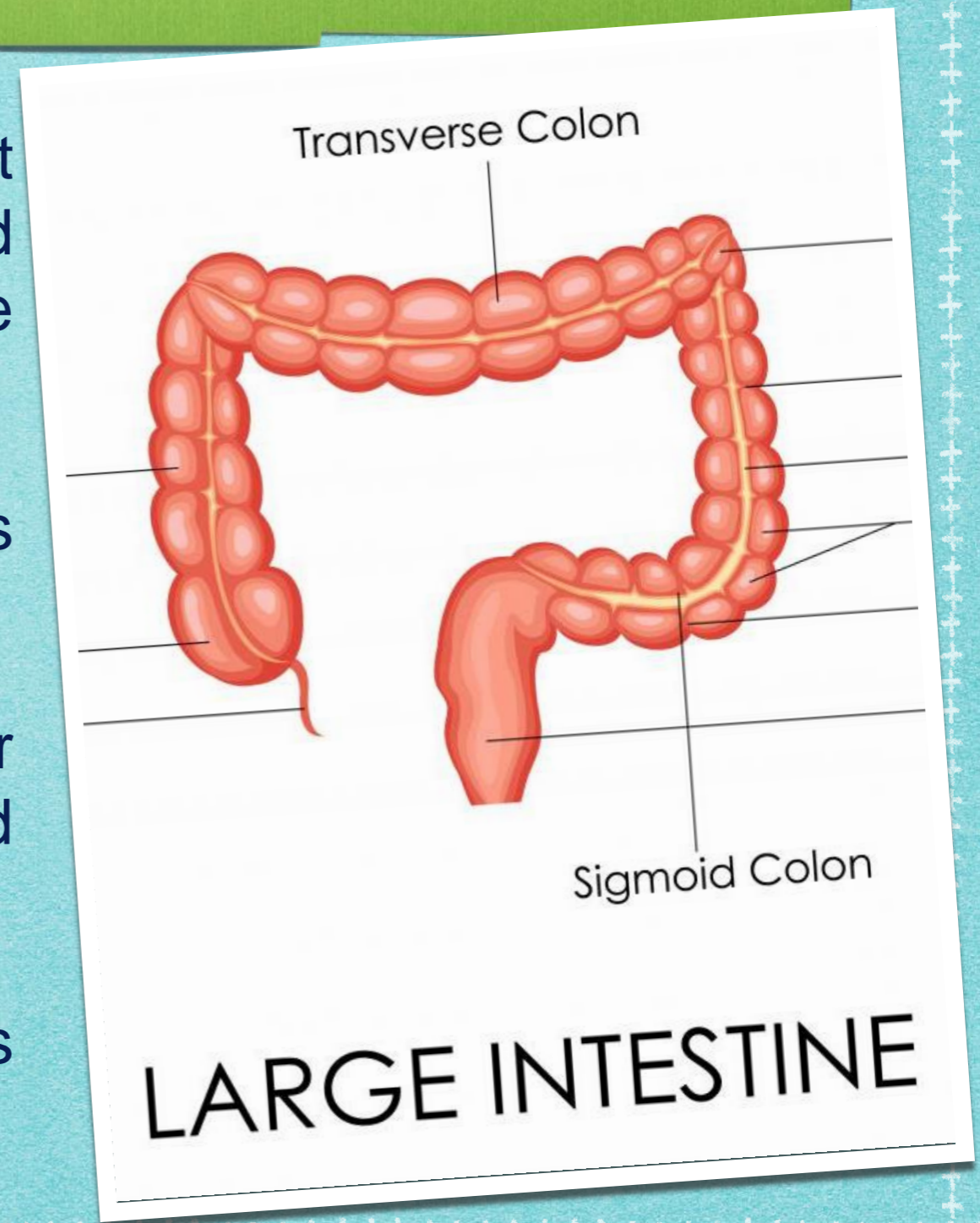
Small Intestine

1. It is a highly convoluted structure and has three parts namely - duodenum, jejunum and ileum.
2. 90% of the digestion and absorption of food occurs here.
3. Proteins, lipids, carbohydrates mainly undergo digestion here.
4. Absorption (ex- monosaccharides, amino acids, electrolytes, lipids, water, vitamins) and assimilation is carried out by small intestine.



Large Intestine

1. Material in the small intestine that has not been digested and absorbed is passed into the large intestine.
2. It reabsorbs water and minerals such as sodium and chloride.
3. It resides symbiotic bacteria for bacterial fermentation of indigested material.
4. It forms and temporarily stores faeces.



Excretion

- The excretion of waste materials is called defecation.
- It is the final step in the digestive process.
- It is the removal of the indigestible substances from the body so that they do not accumulate in the gut.

Fun Fact

- How does the food move through the digestive system?
- It is NOT GRAVITY that causes food to move through the digestive tract.
- Even if you stood upside down, food would still move through oesophagus and small intestines.
- Muscles in the walls of these organs squeeze and release rhythmically to move the partly digested food along.





THANK YOU!

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