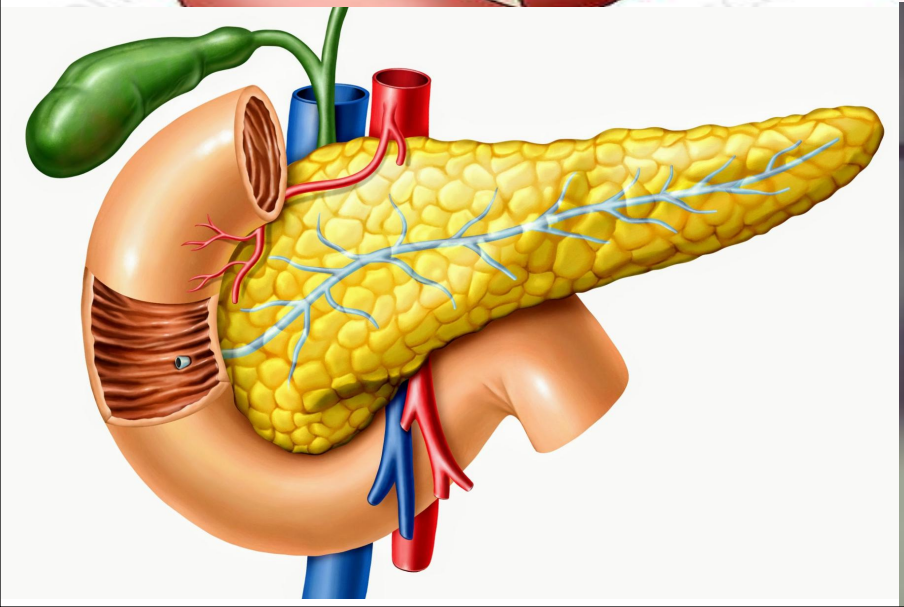
# DIGESTIVE SYSTEM

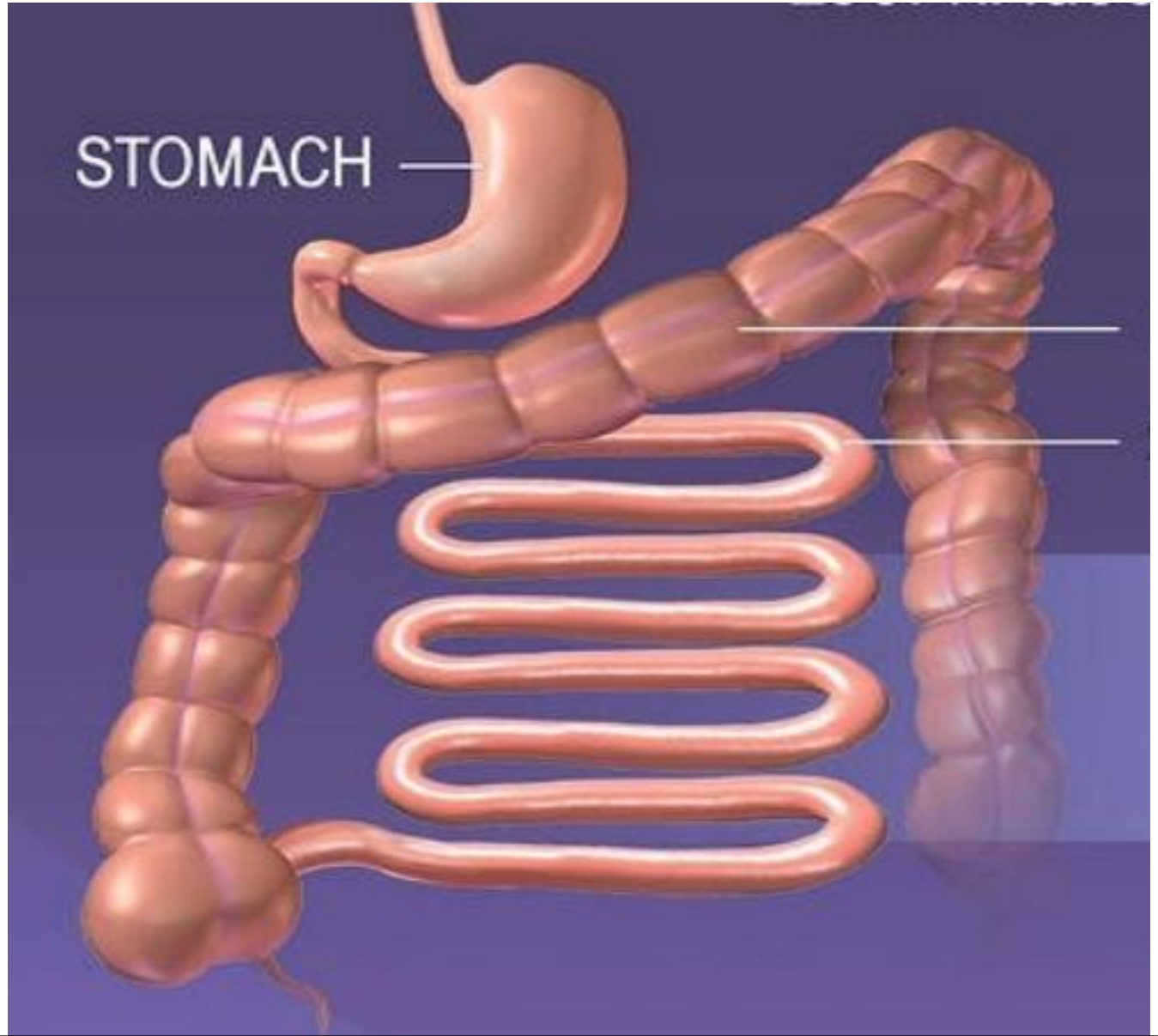


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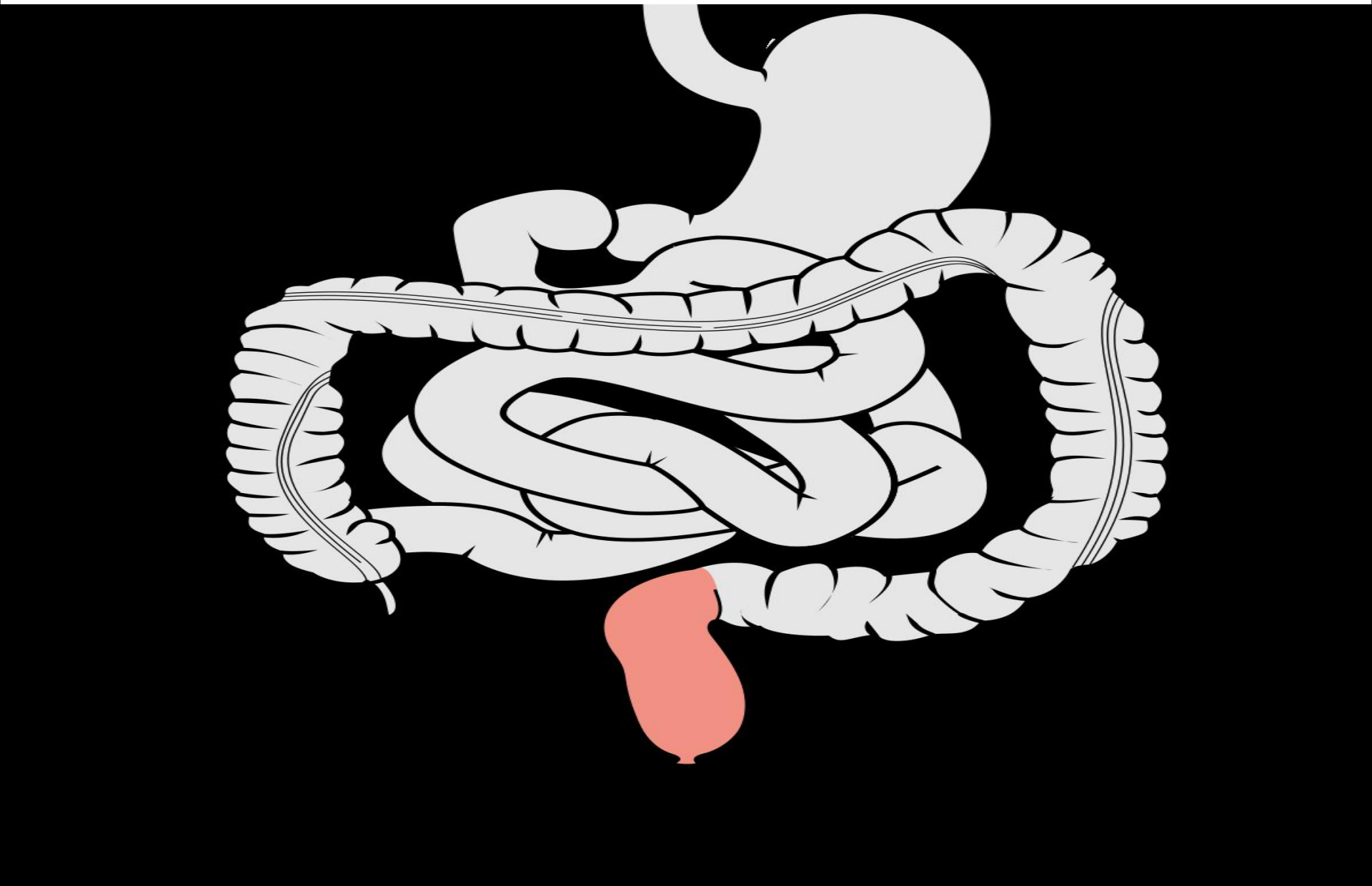




# THE ALIMENTARY CANAL / GUT



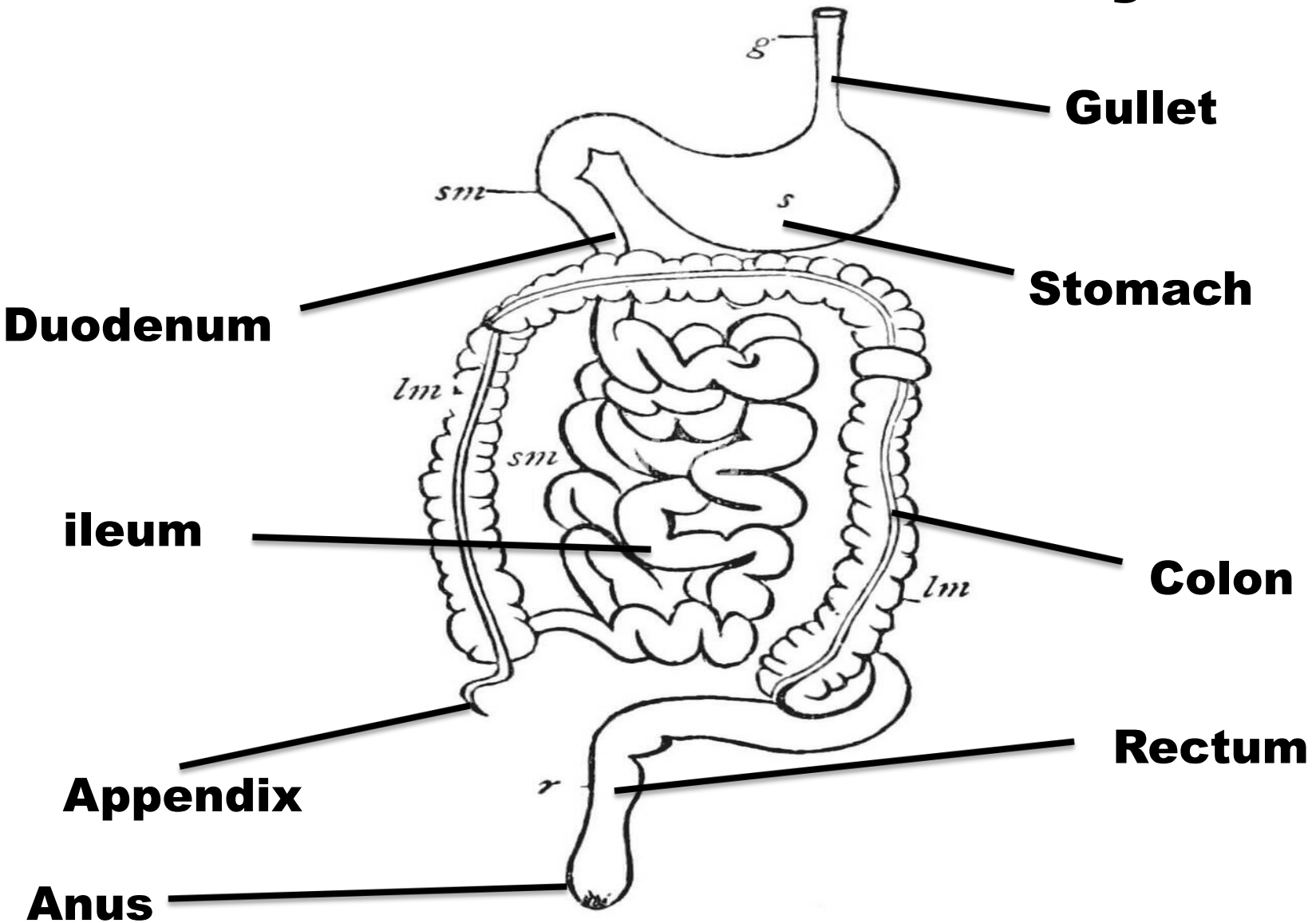
# The alimentary canal is a tube that runs from the mouth to the anus



# Parts that make up the alimentary canal

- Mouth
- Gullet
- Stomach
- Duodenum
- Ileum
- Colon
- Rectum
- Appendix
- Anus

# Structure of the alimentary canal



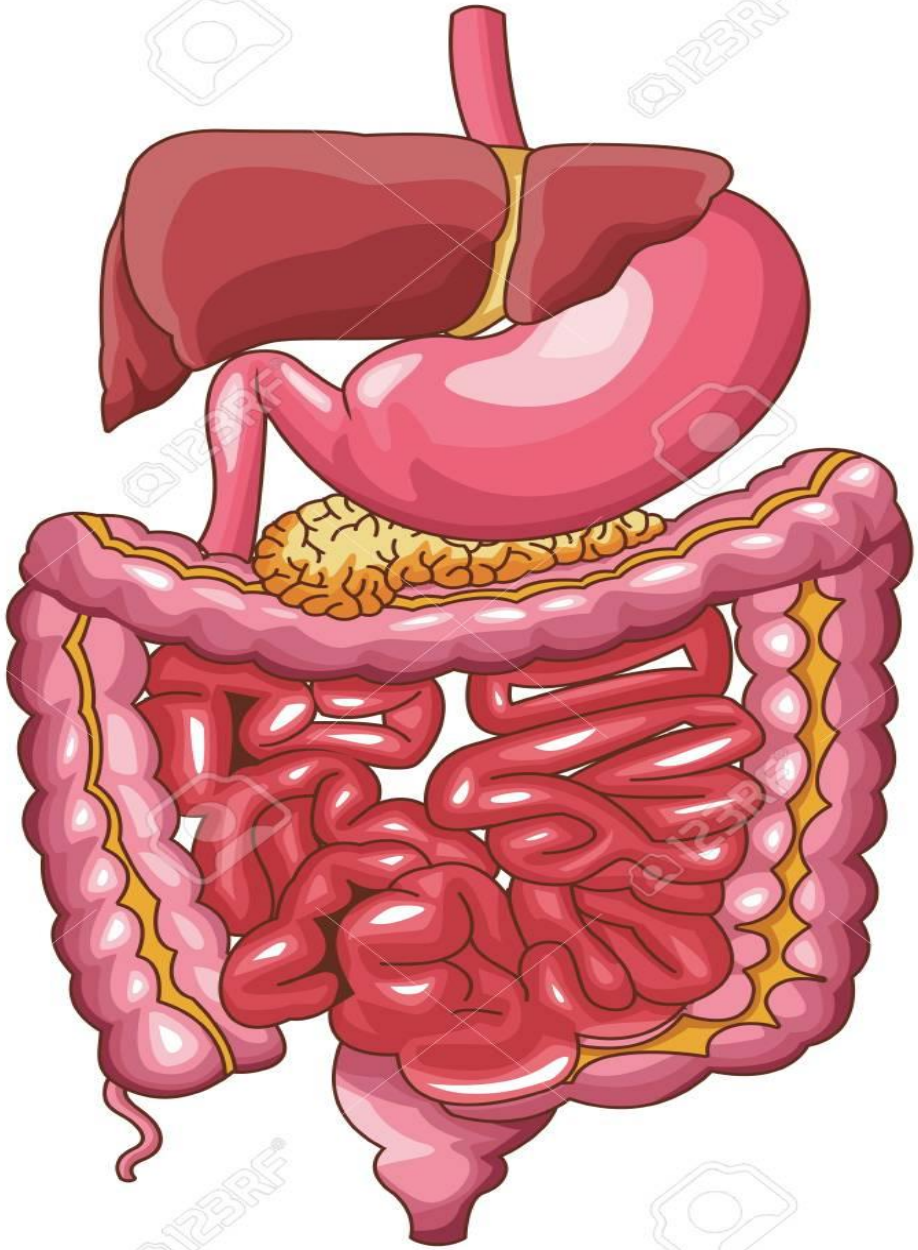

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# The alimentary canal

**Begins** **Mouth**

**Ends** **Anus**

# DIGESTIVE SYSTEM



# DIGESTIVE SYSTEM



**This is a system that deals with the break down of food into simple soluble particles that can be absorbed into the blood stream**

# Parts that make up the digestive

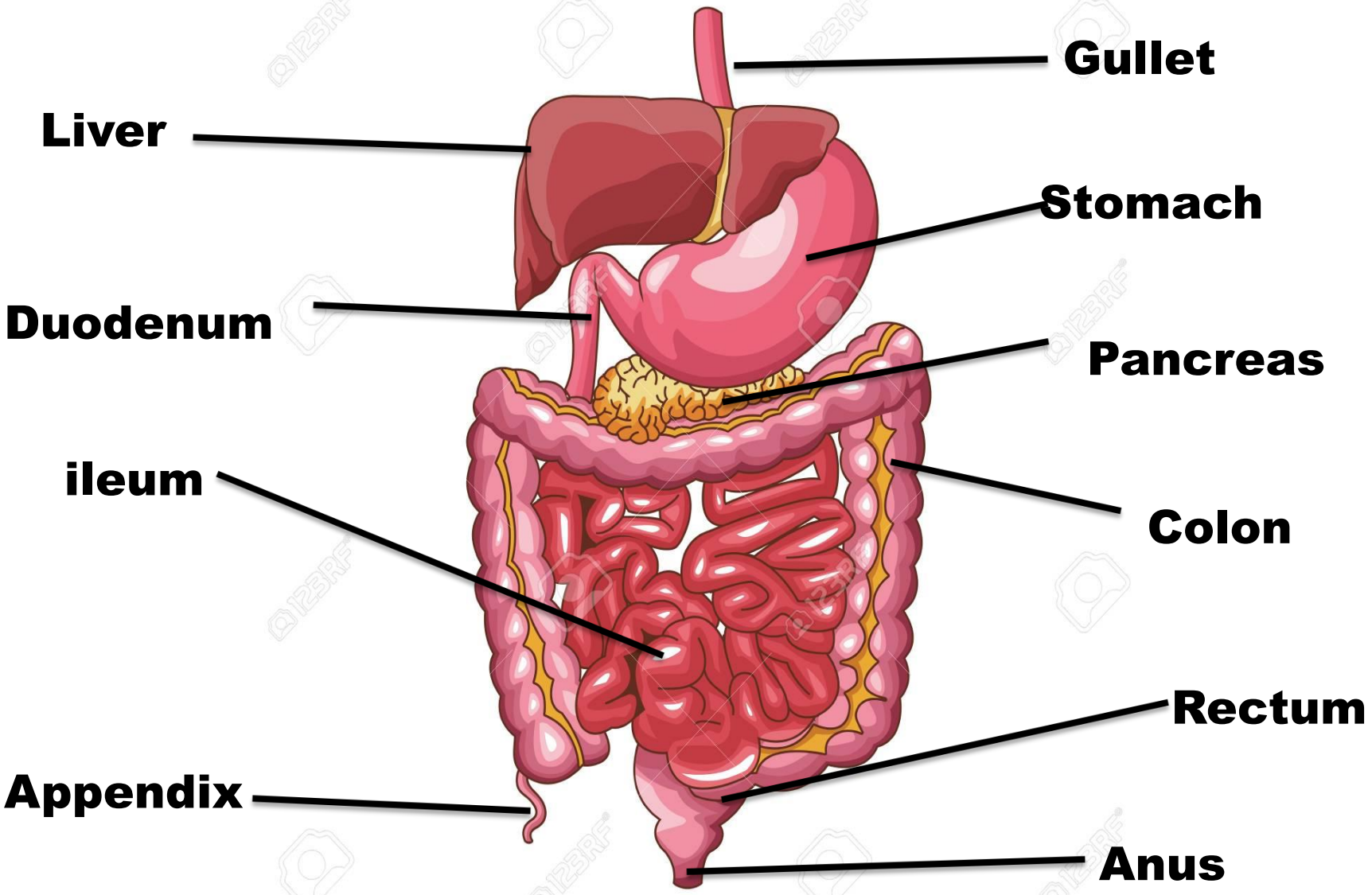
- Salivary glands
- Teeth
- Tongue
- Gullet
- Stomach
- Liver
- Gall bladder
- pancreas
- Duodenum
- Ileum
- Colon
- Rectum
- Appendix
- Anus

**In other words the digestive system is made up of the alimentary canal and other parts called accessory organs**

**NB**

**The alimentary canal is just part of the digestive system**

# Structure of the digestive system



# ACTIVITY

- What is alimentary canal?

- Name any two organs that are part of the digestive system but not part if the alimentary canal

- Where does the alimentary canal:

i) Begin

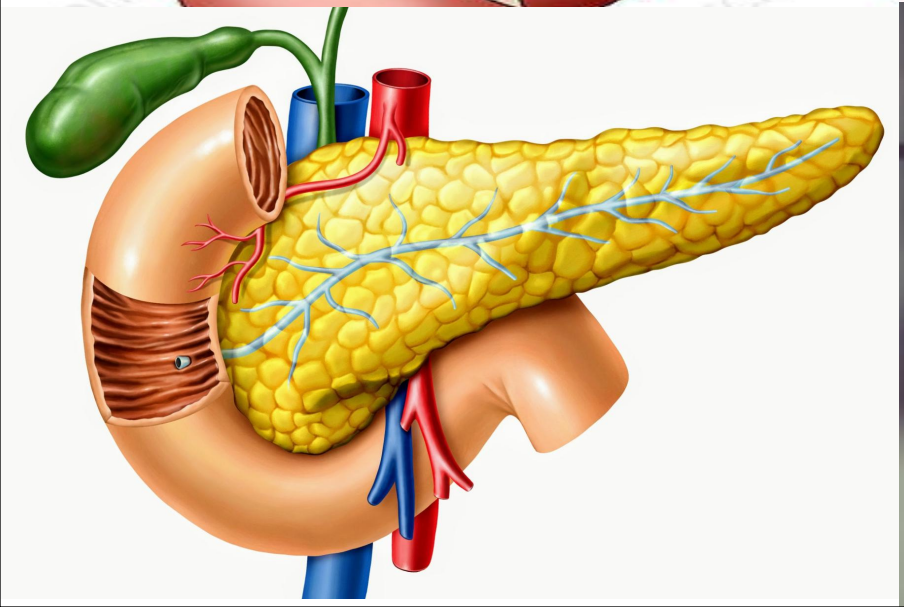
ii) End

- Apart from the digestive system, write down any other two systems that make up an organism

# DIGESTIVE SYSTEM

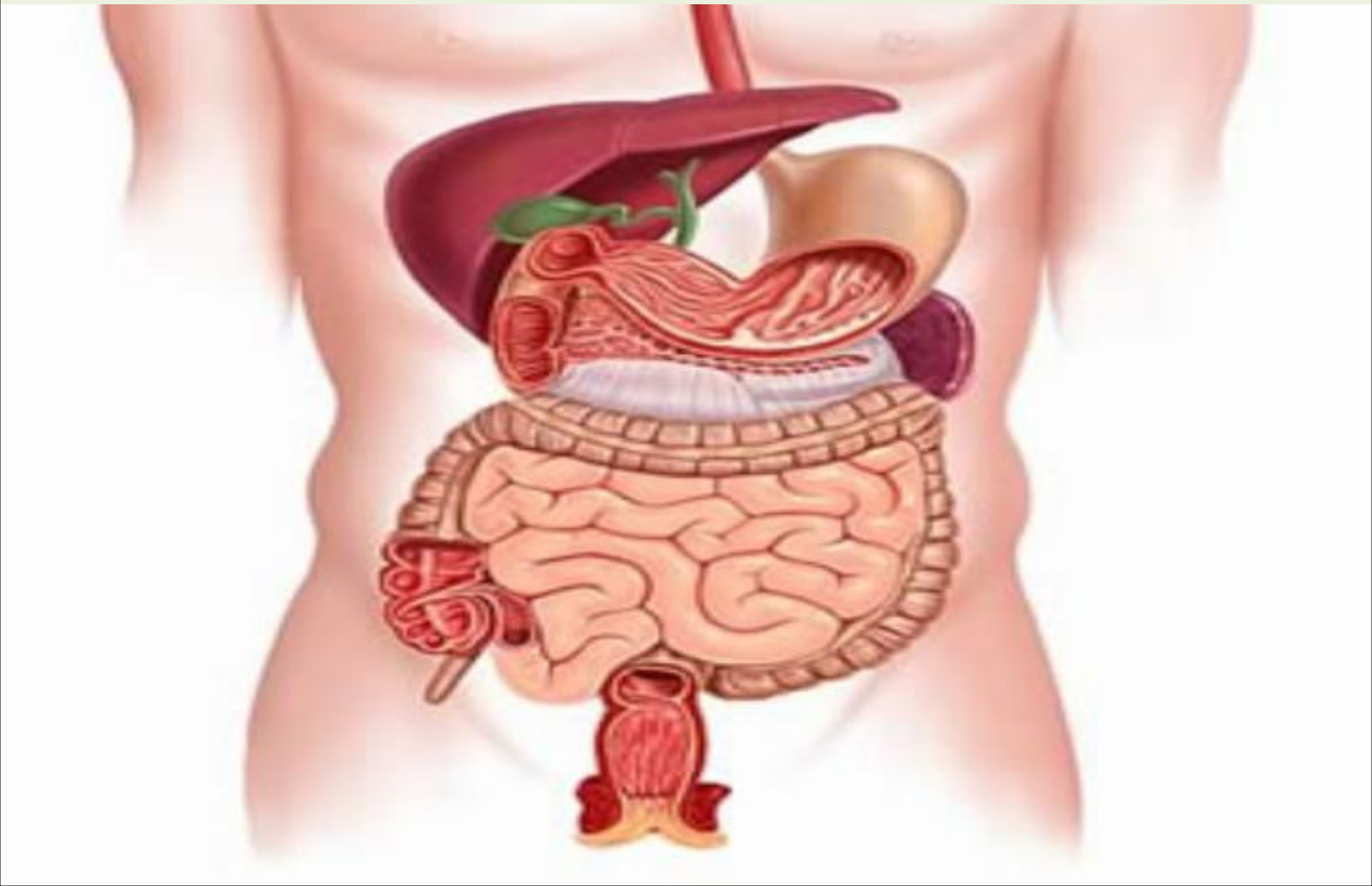


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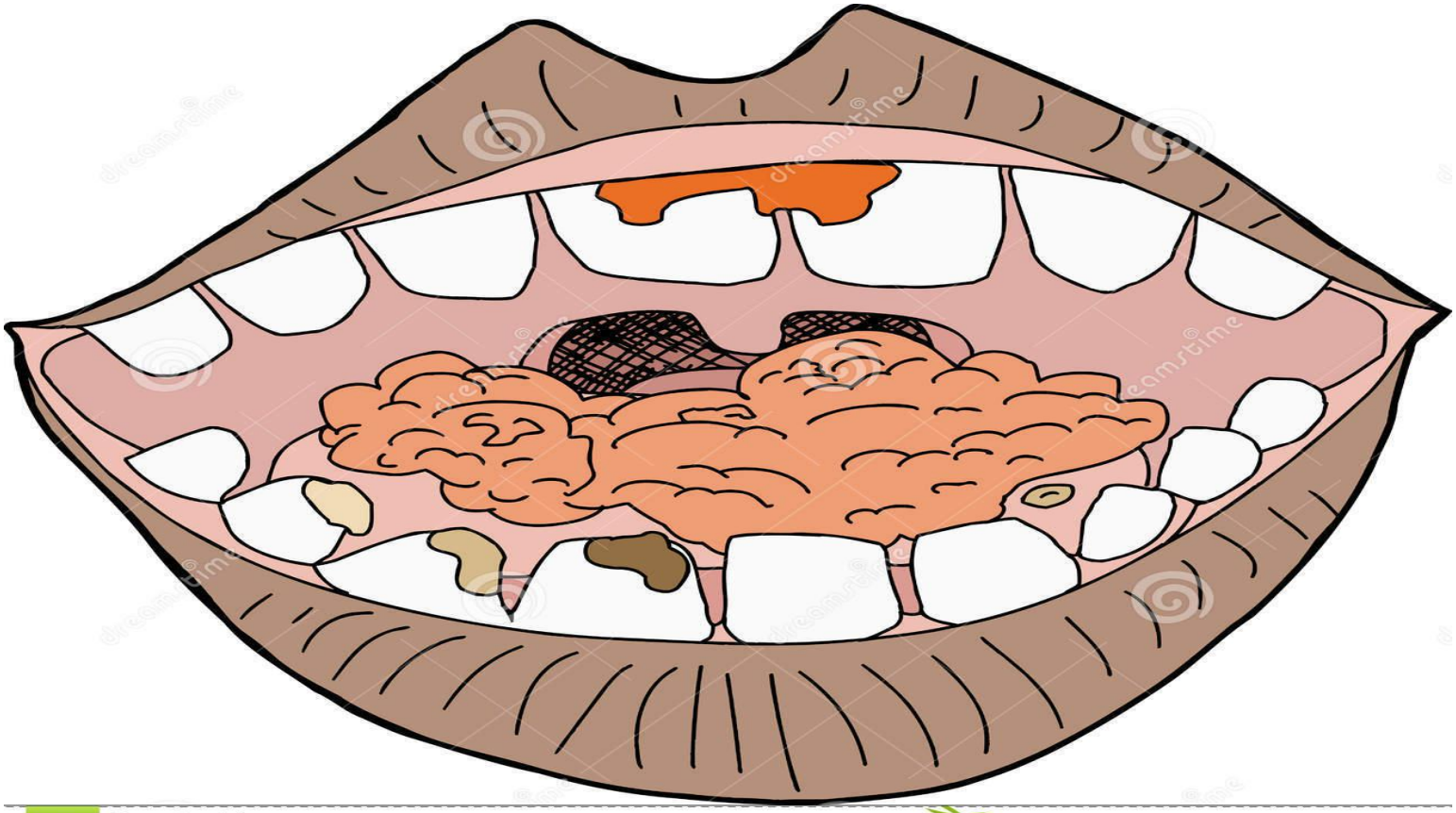


# FUNCTION OF THE DIFFERENT PARTS



# Teeth

## Teeth help to break down food into smaller particles

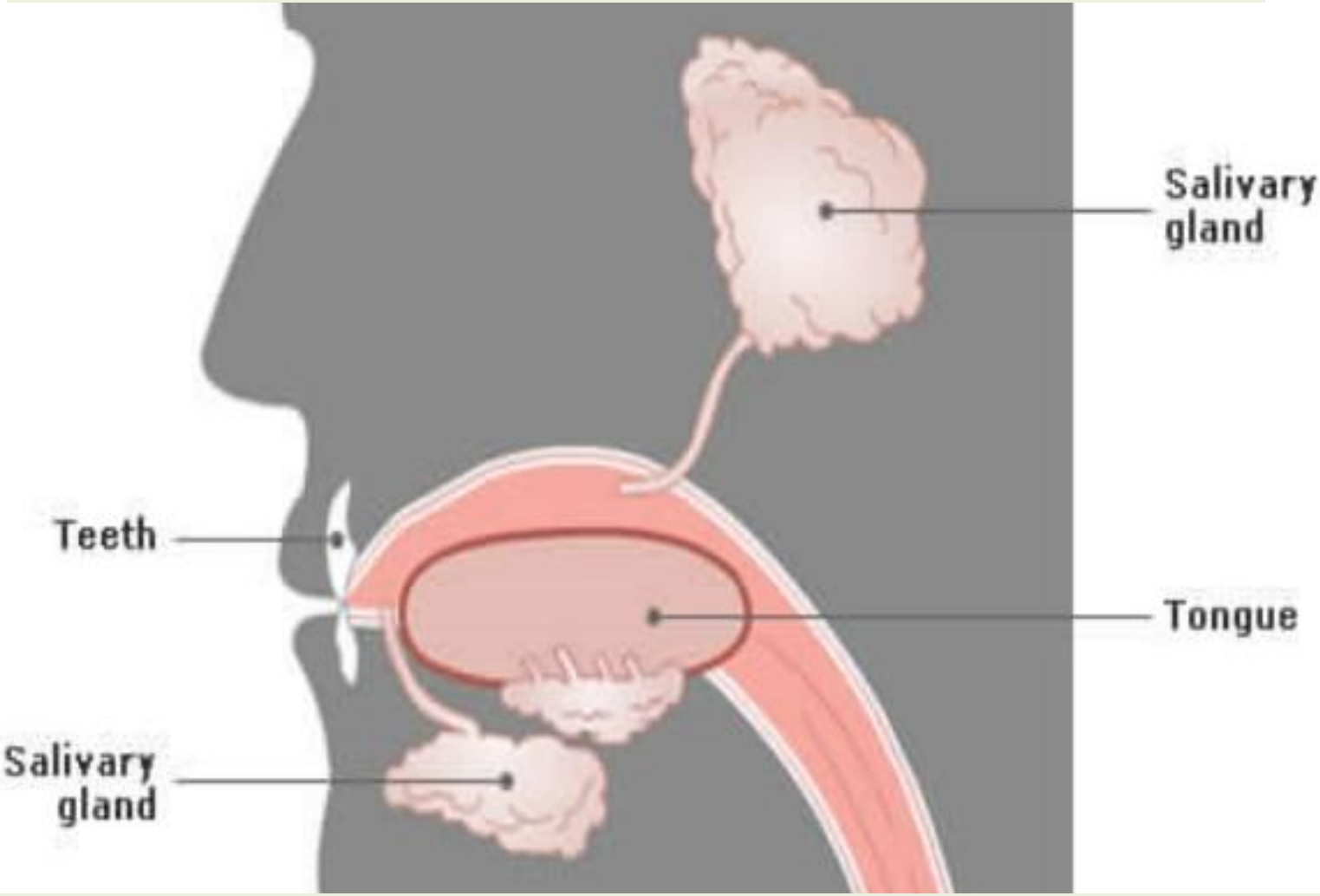


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# Teeth



# Salivary glands




**Salivary glands produce saliva**

# Salivary glands



They produce saliva

# Components of saliva



- **Water**
- **Ptyalin (salivary amylase)**
- **Mineral salts**
- **Mucus**

# How is saliva useful in digestion?

**Saliva contains salivary amylase that helps to digest starch**

**Saliva also helps to lubricate food to ease swallowing**

# NB

## Chemical digestion of starch starts in the mouth

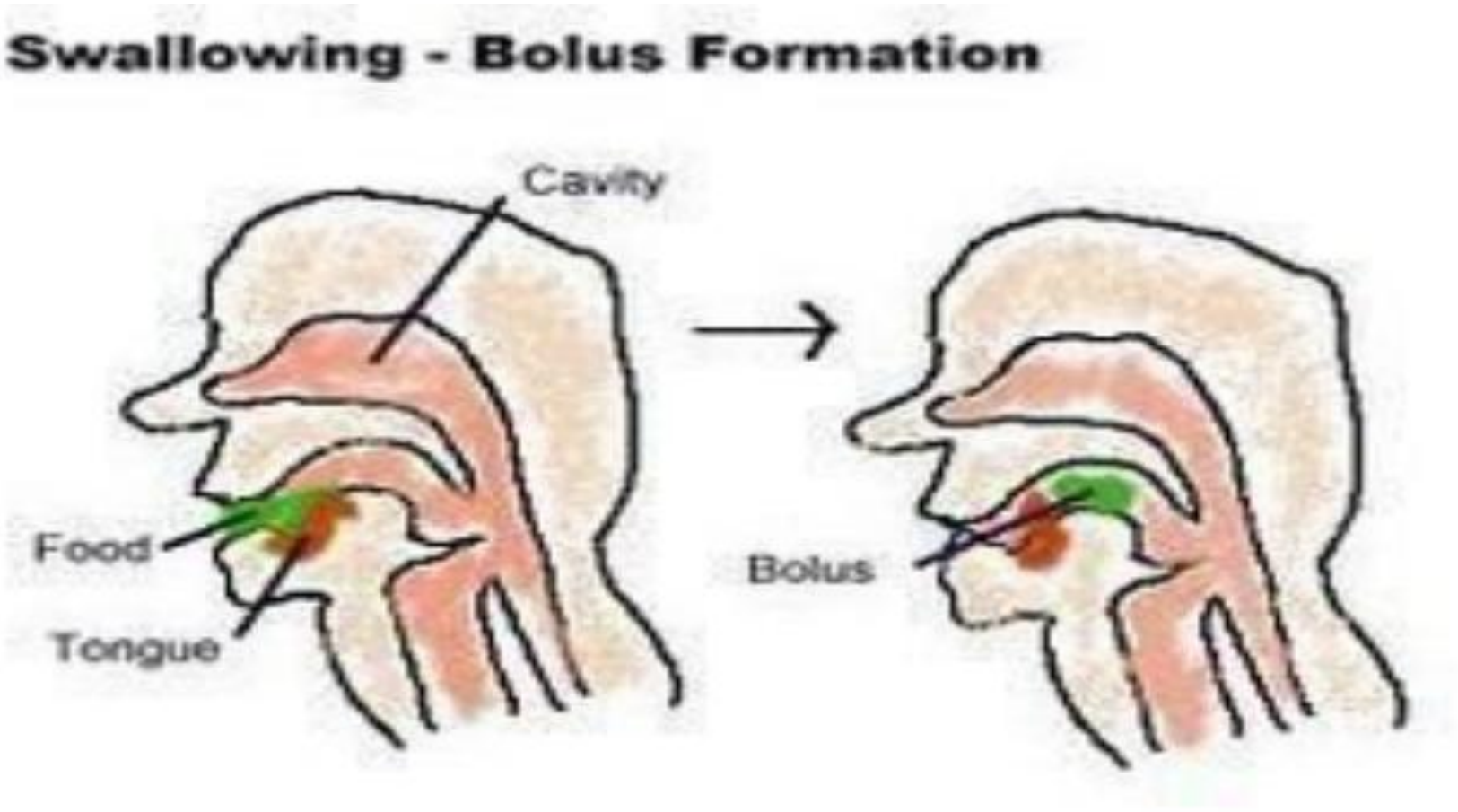


# The tongue

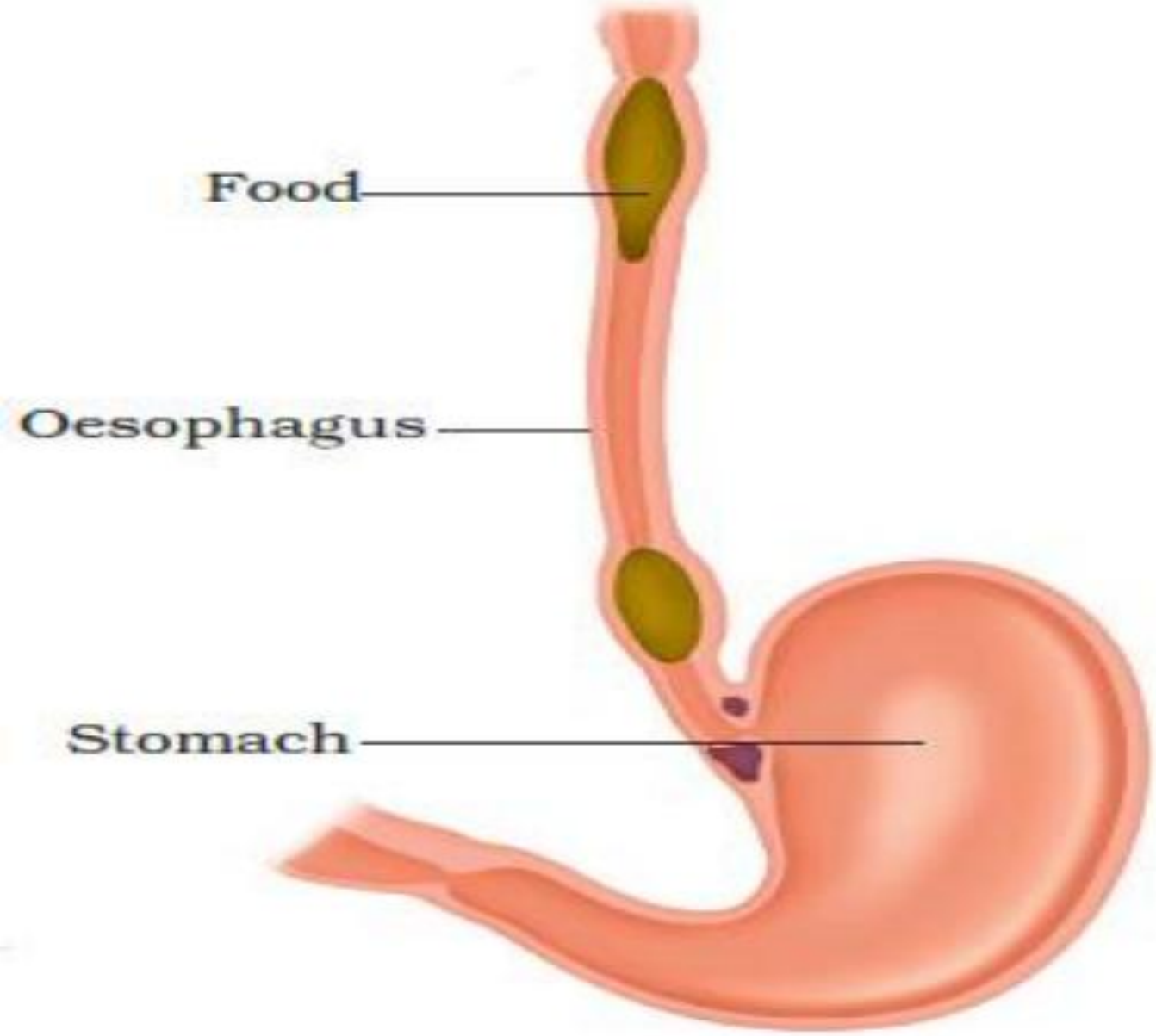


# Tongue

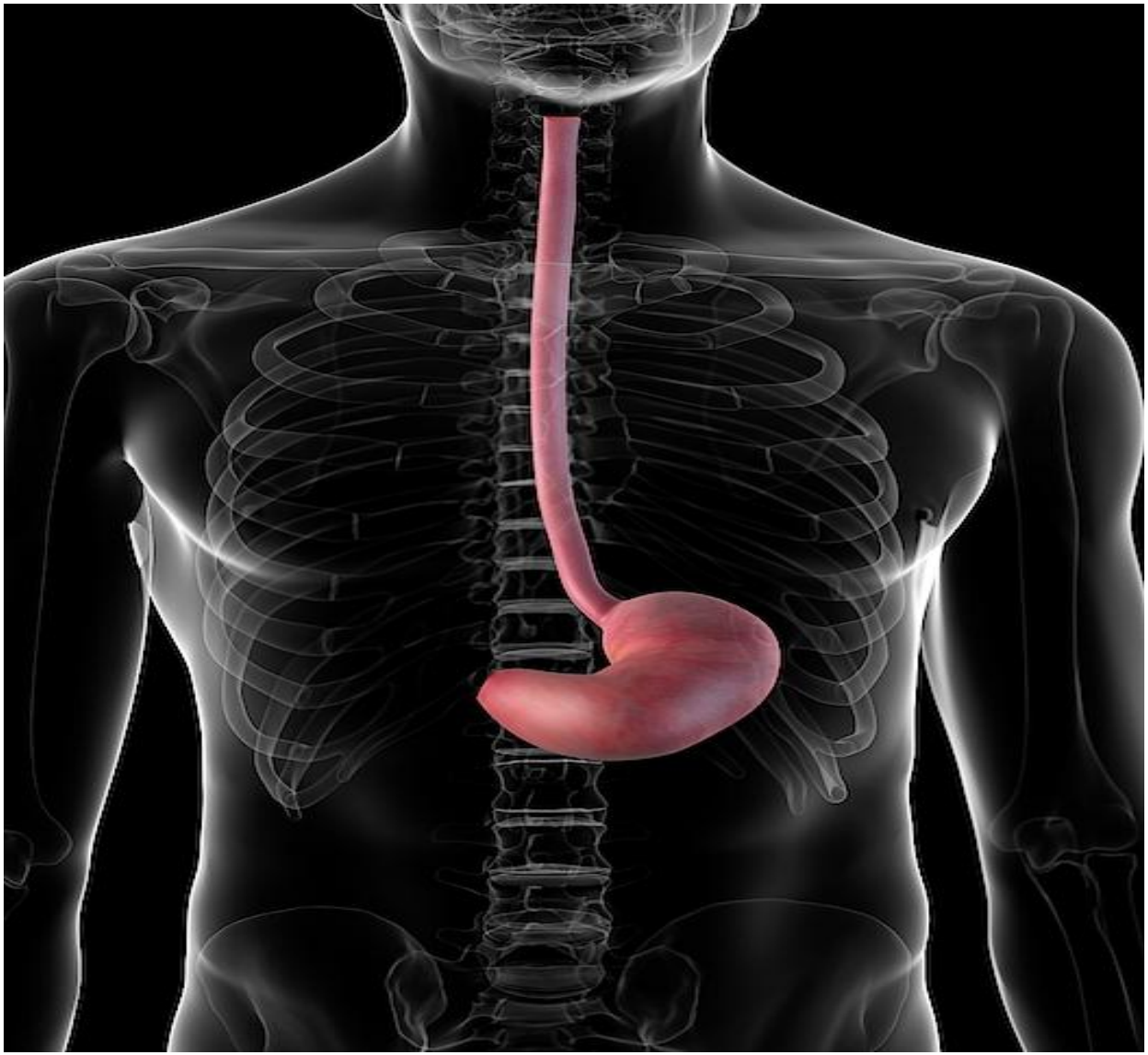
## The tongue rolls food into a bolus



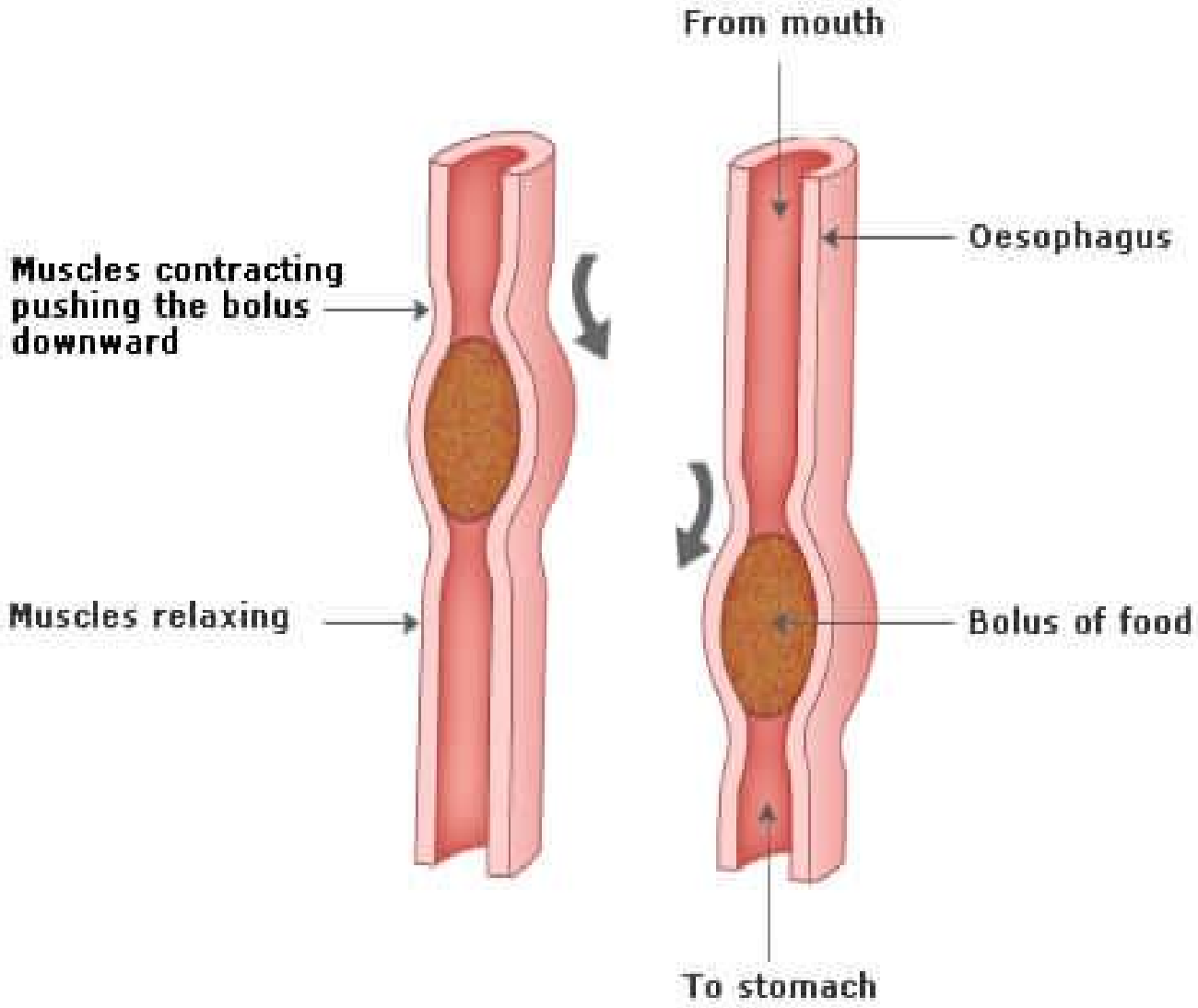
# Gullet / oesophagus



# The gullet is a passage of food from the mouth to the stomach

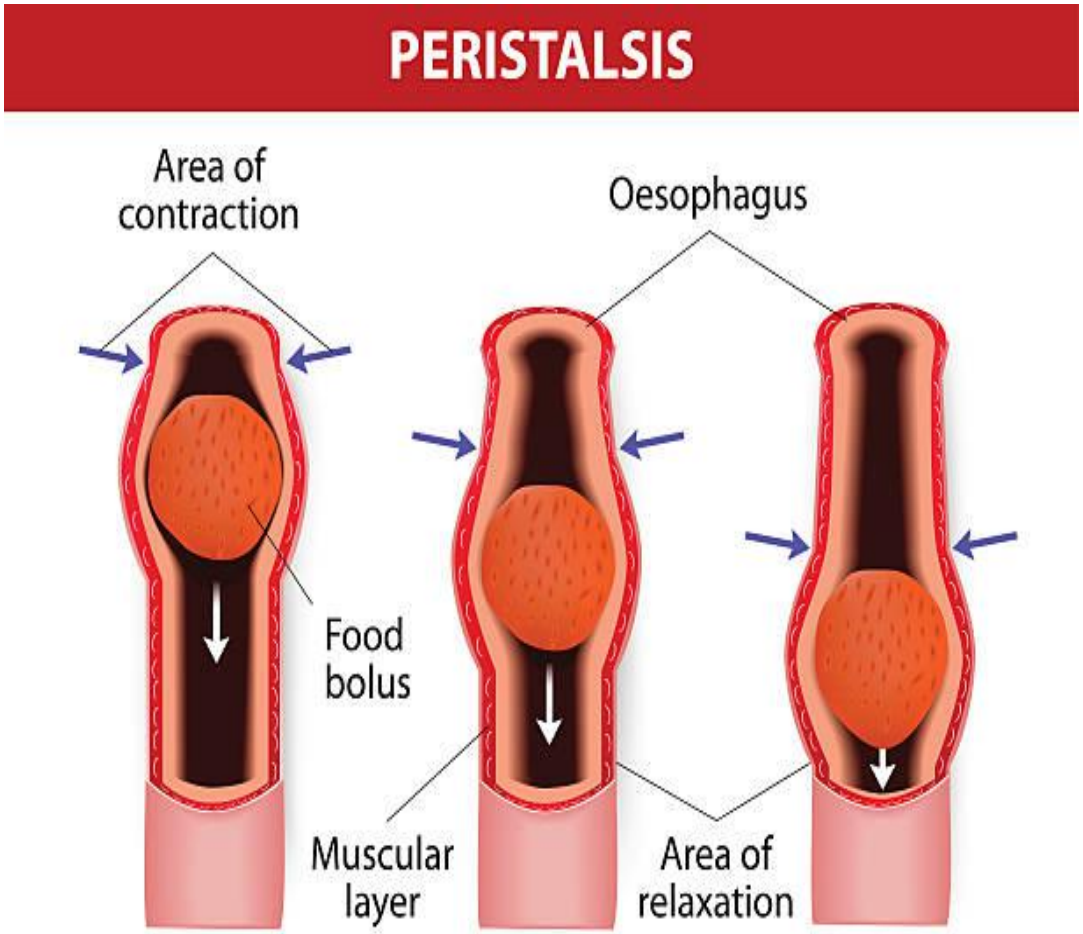


# Food moves through the gulled by peristalsis



# PERISTALSIS

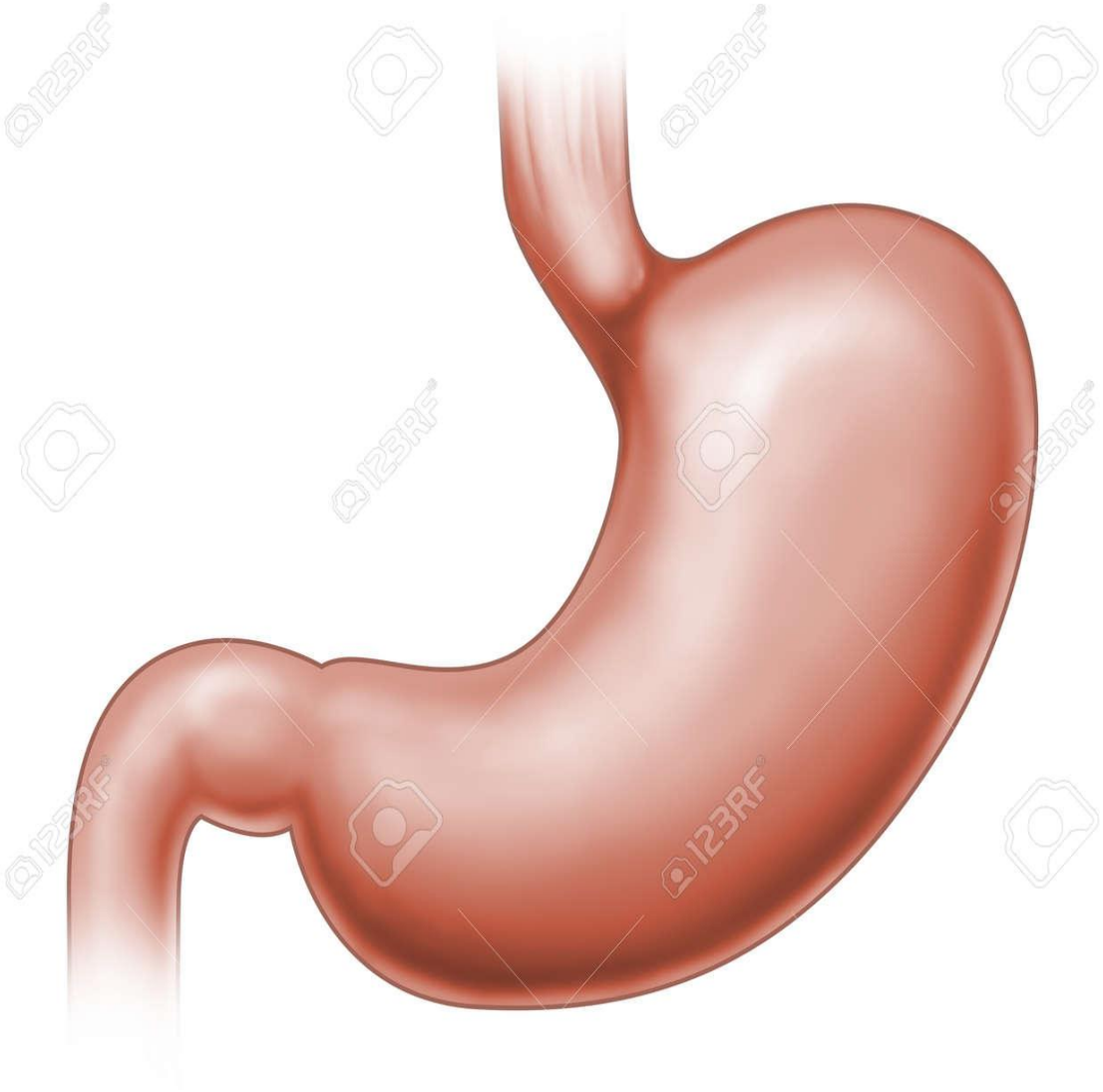
**This is the wave like movement of food through the alimentary canal**



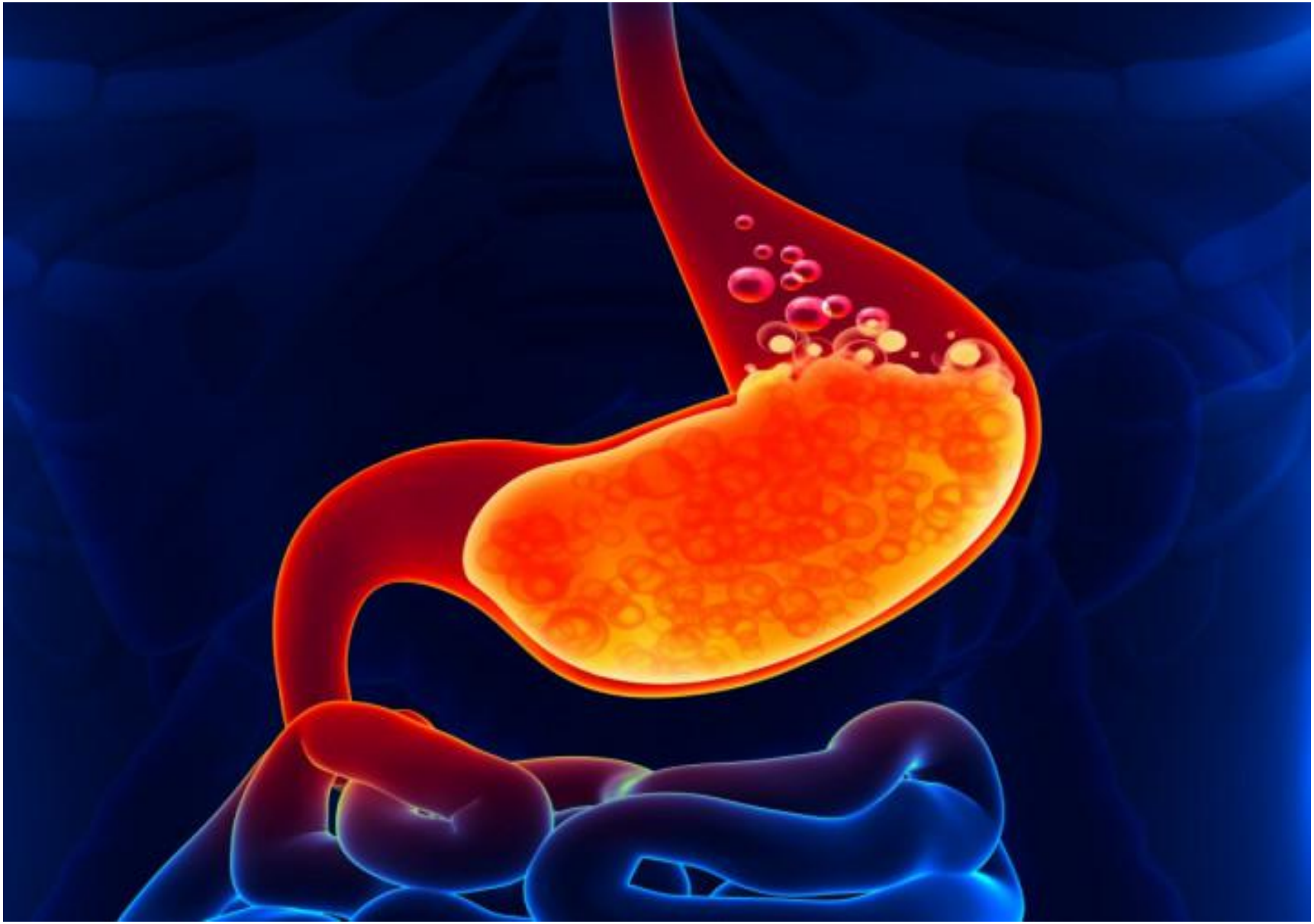
# Stomach



# Stomach



# The walls of the stomach produce gastric juice



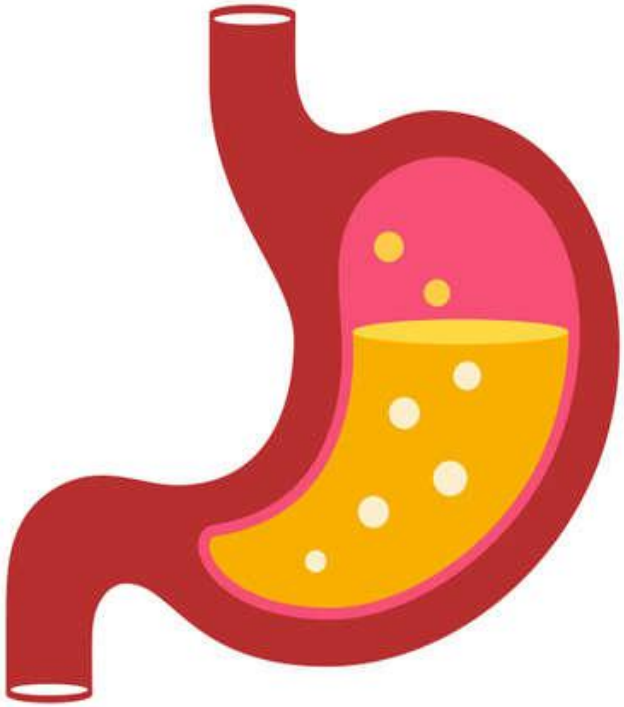
# Components of gastric juice

- **Pepsin**
- **Rennin**
- **Hydrochloric acid**
- **Mucus**

# Rennin clots milk proteins in babies (coagulates milk proteins)



# Hydrochloric acid



**Hydrochloric acid kills germs that may have escaped with food**

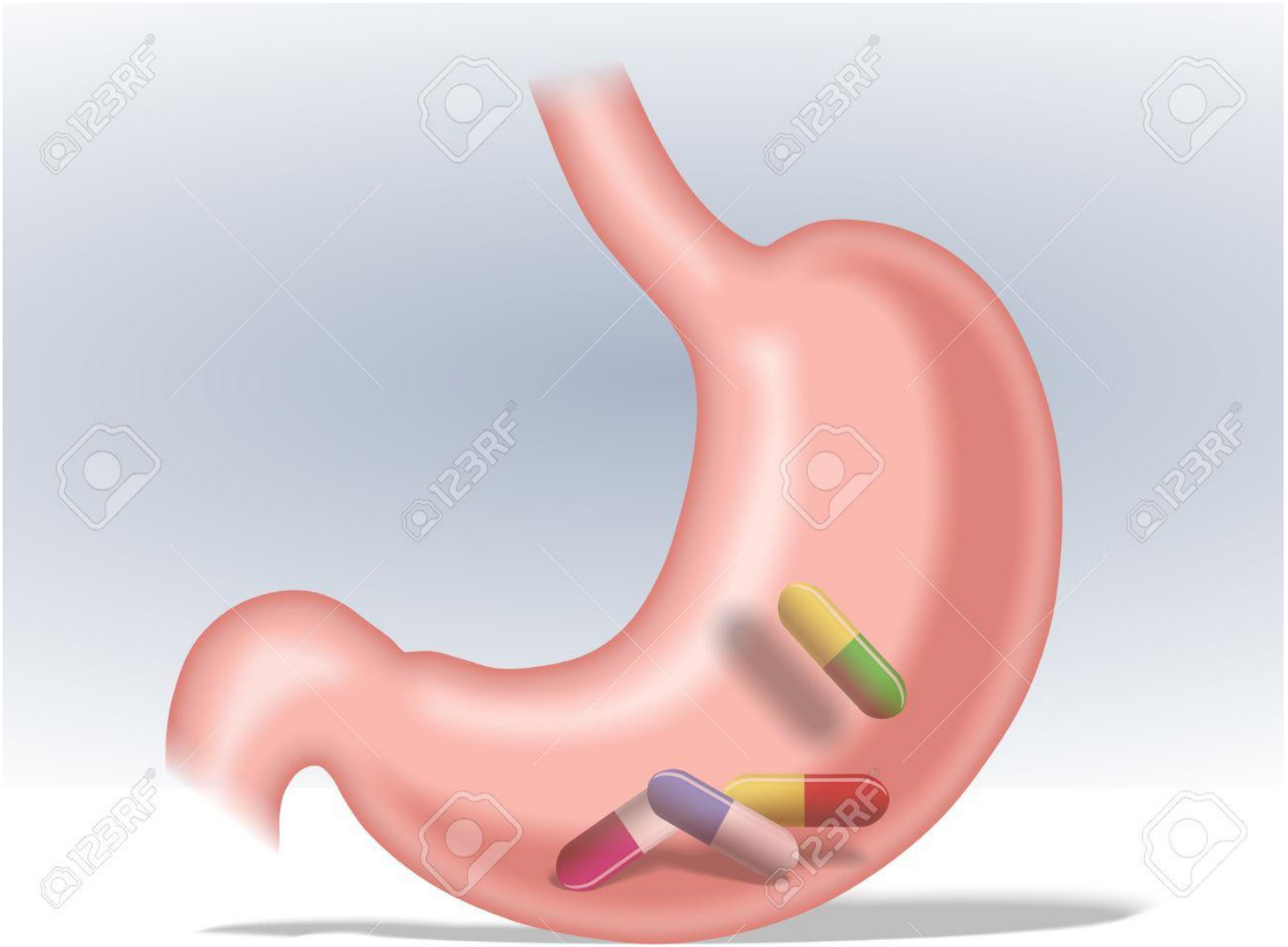
**Hydrochloric acid also creates acidic conditions for the proper working of pepsin and rennin**

# What is absorbed in the stomach?

**Medicine**

**Alcohol**

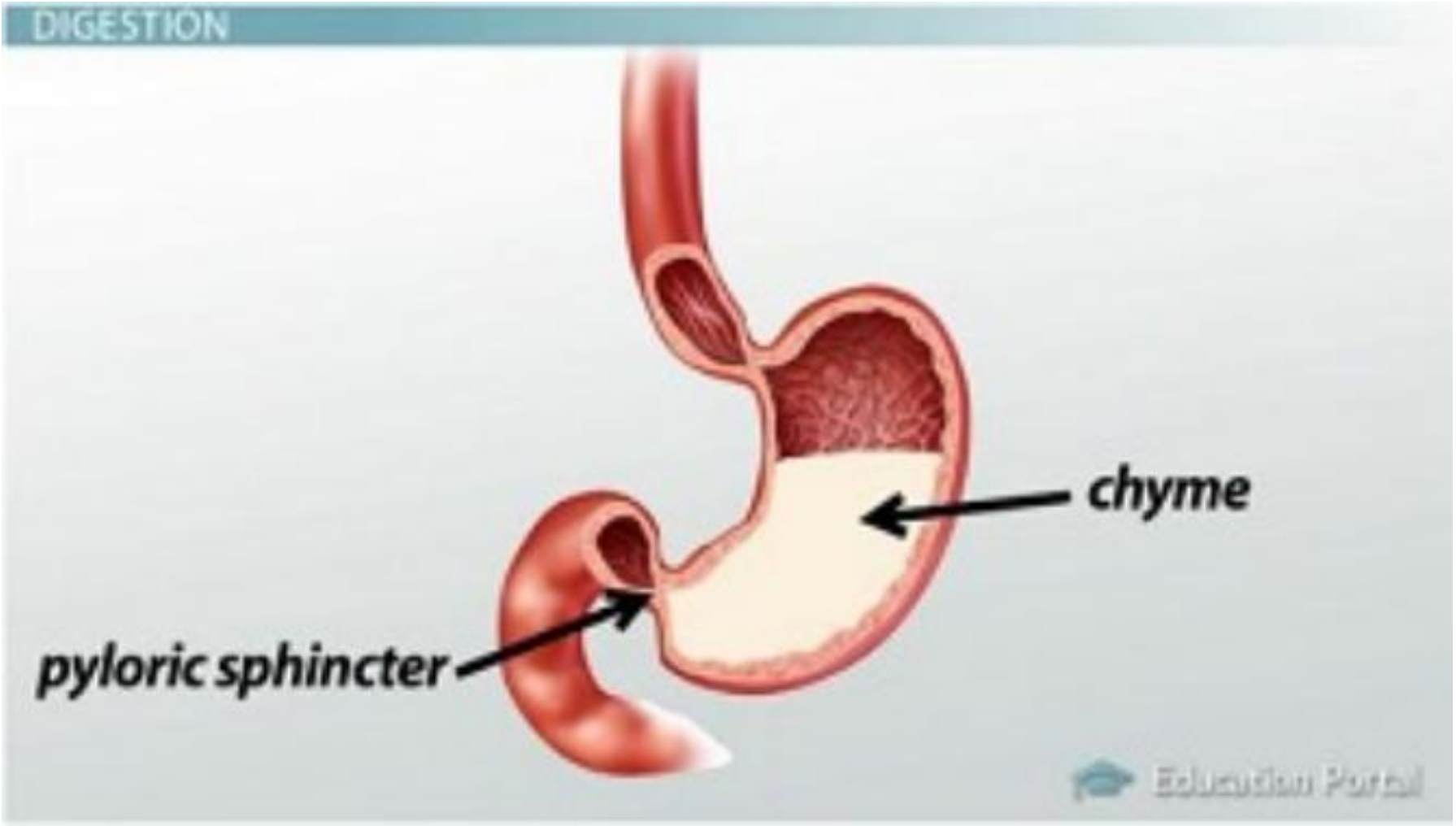
# Medicine



# Alcohol



# Food in the stomach is churned to form chyme




**Chyme is a mixture of partially digested food mixed with digestive juices**



**Chemical digestion of proteins starts in the stomach**

# ACTIVITY

- What is meant by peristalsis?

- Give the role of the tongue during digestion
- Write down any two components of gastric juice

- Where does chemical digestion of each of the following start

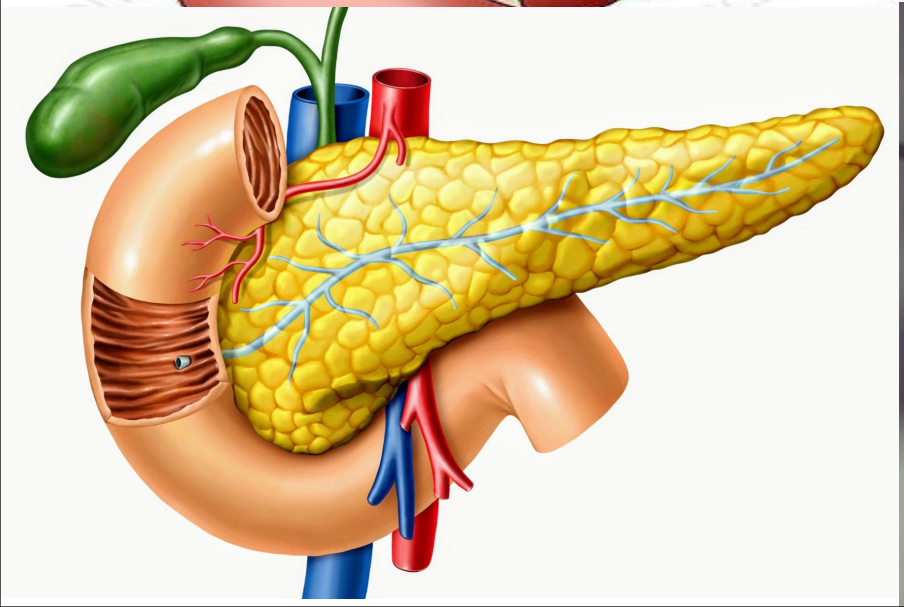
i) Carbohydrates

ii) Proteins

# DIGESTIVE SYSTEM

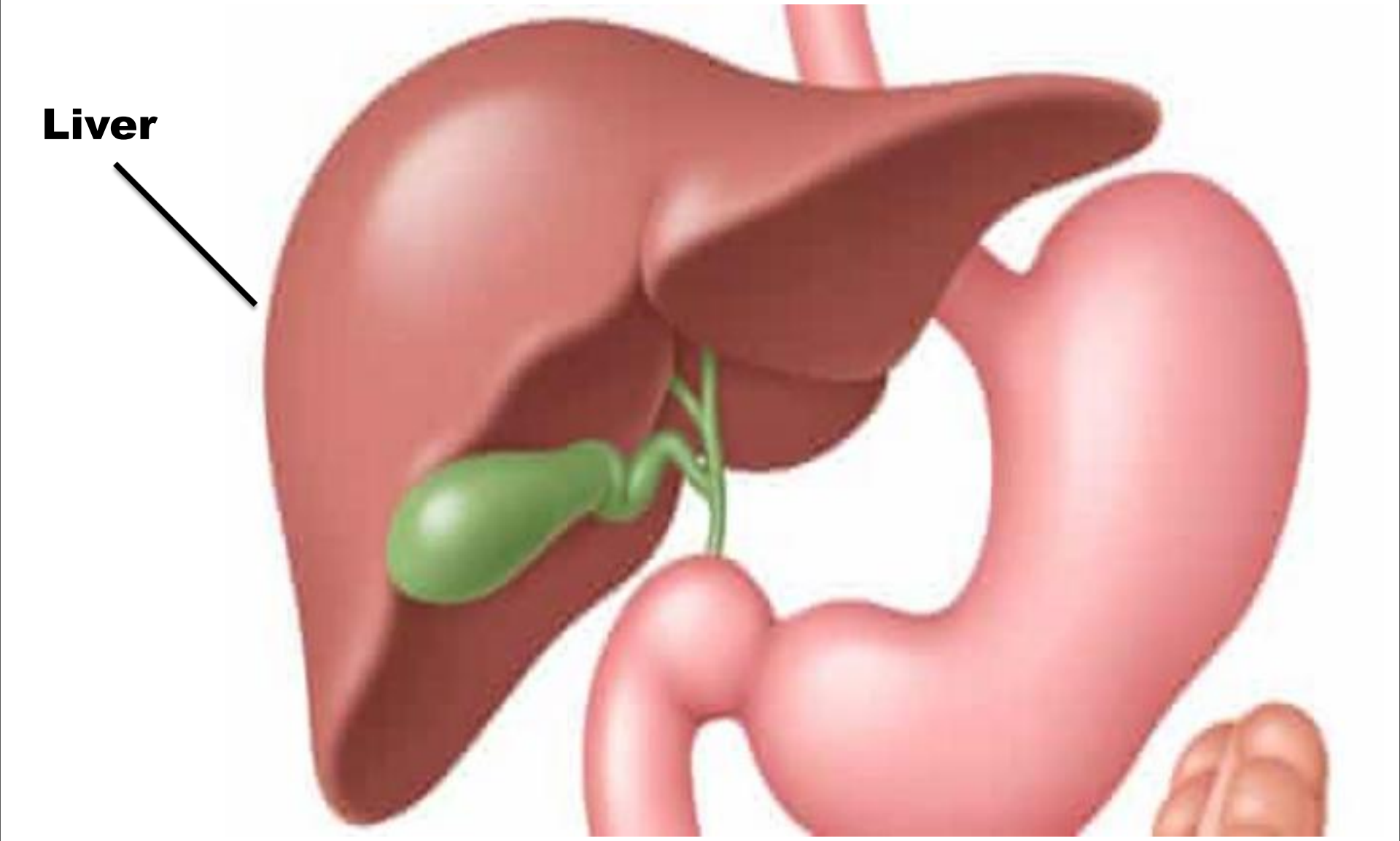


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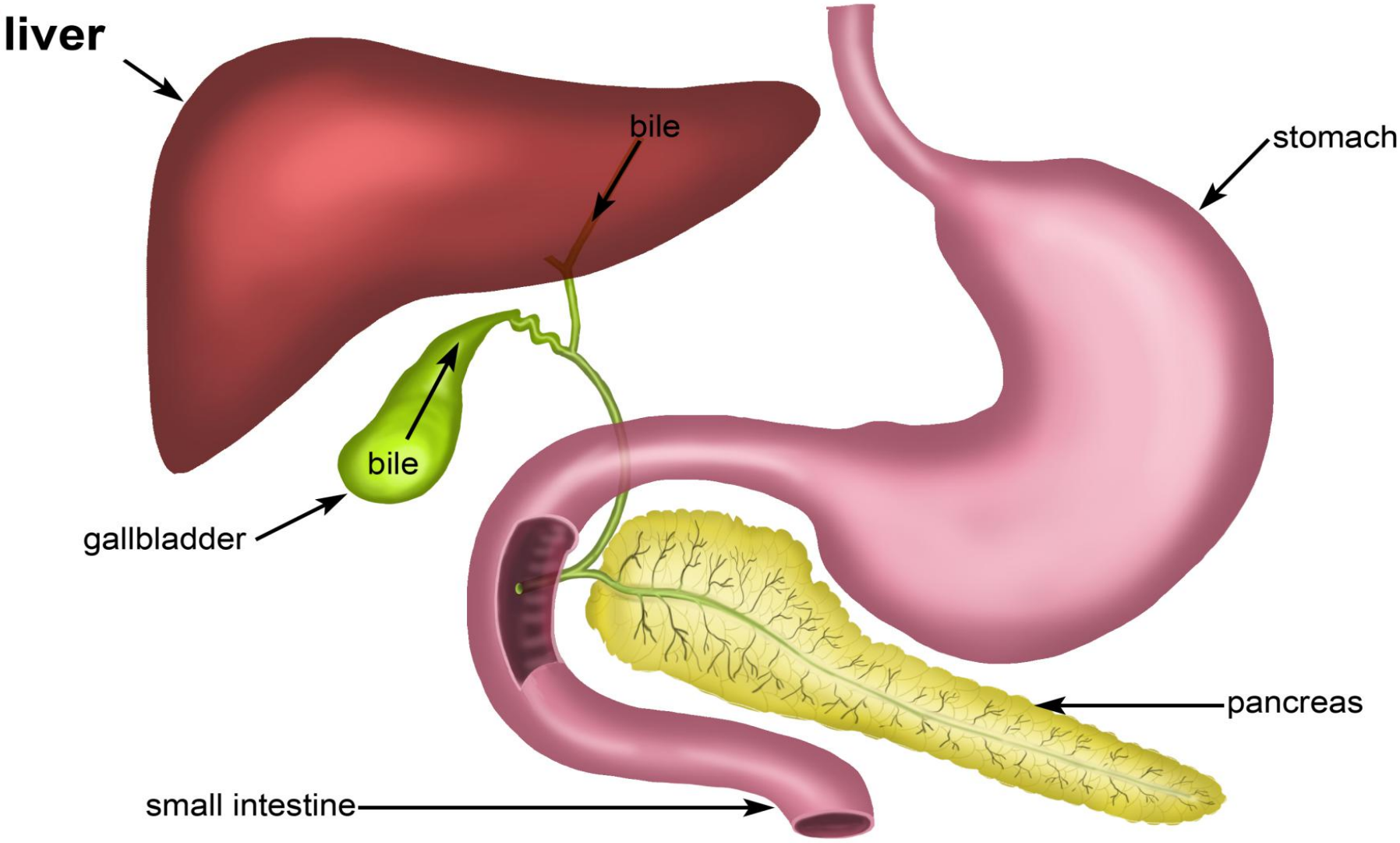




# Liver



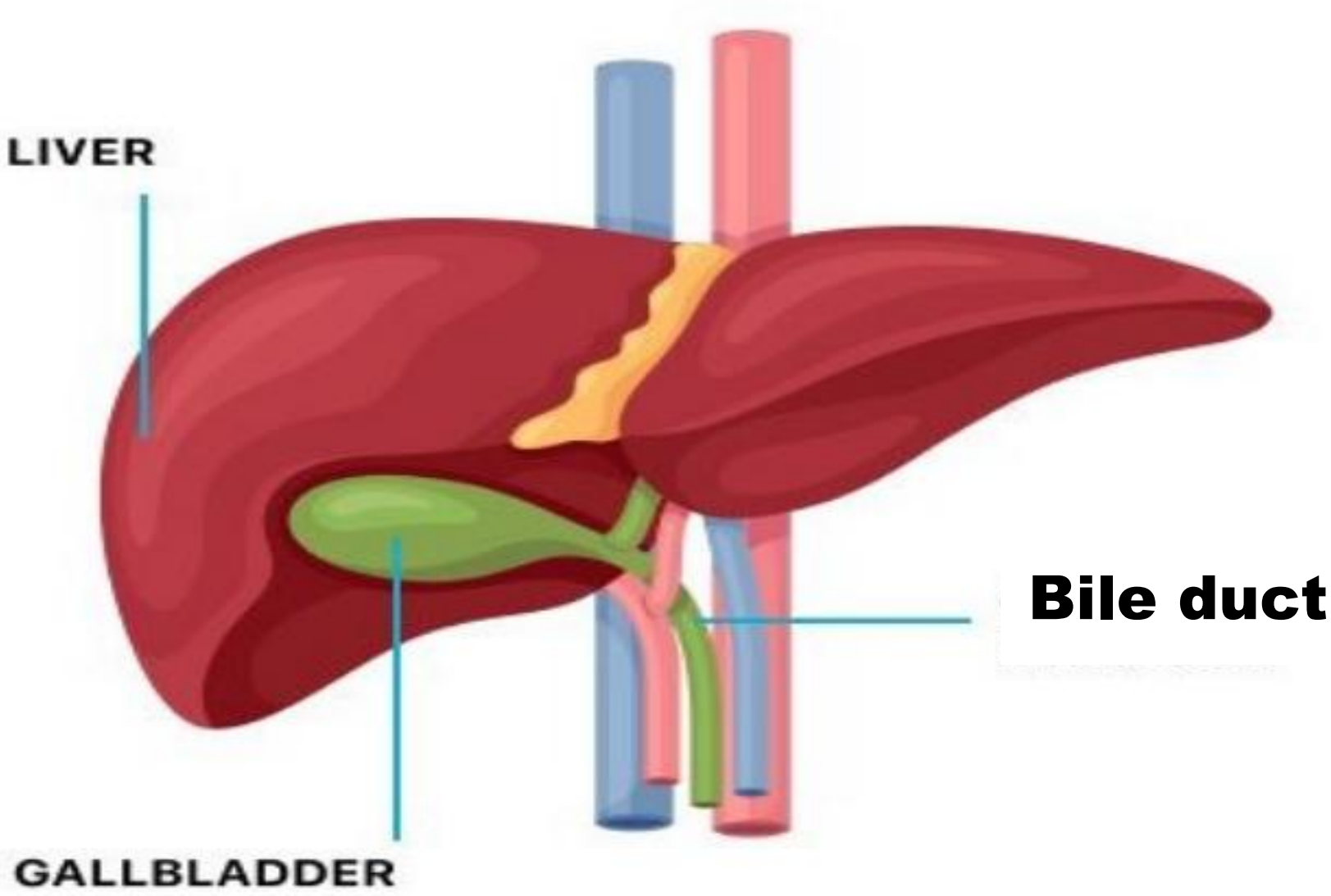
# The liver produces bile



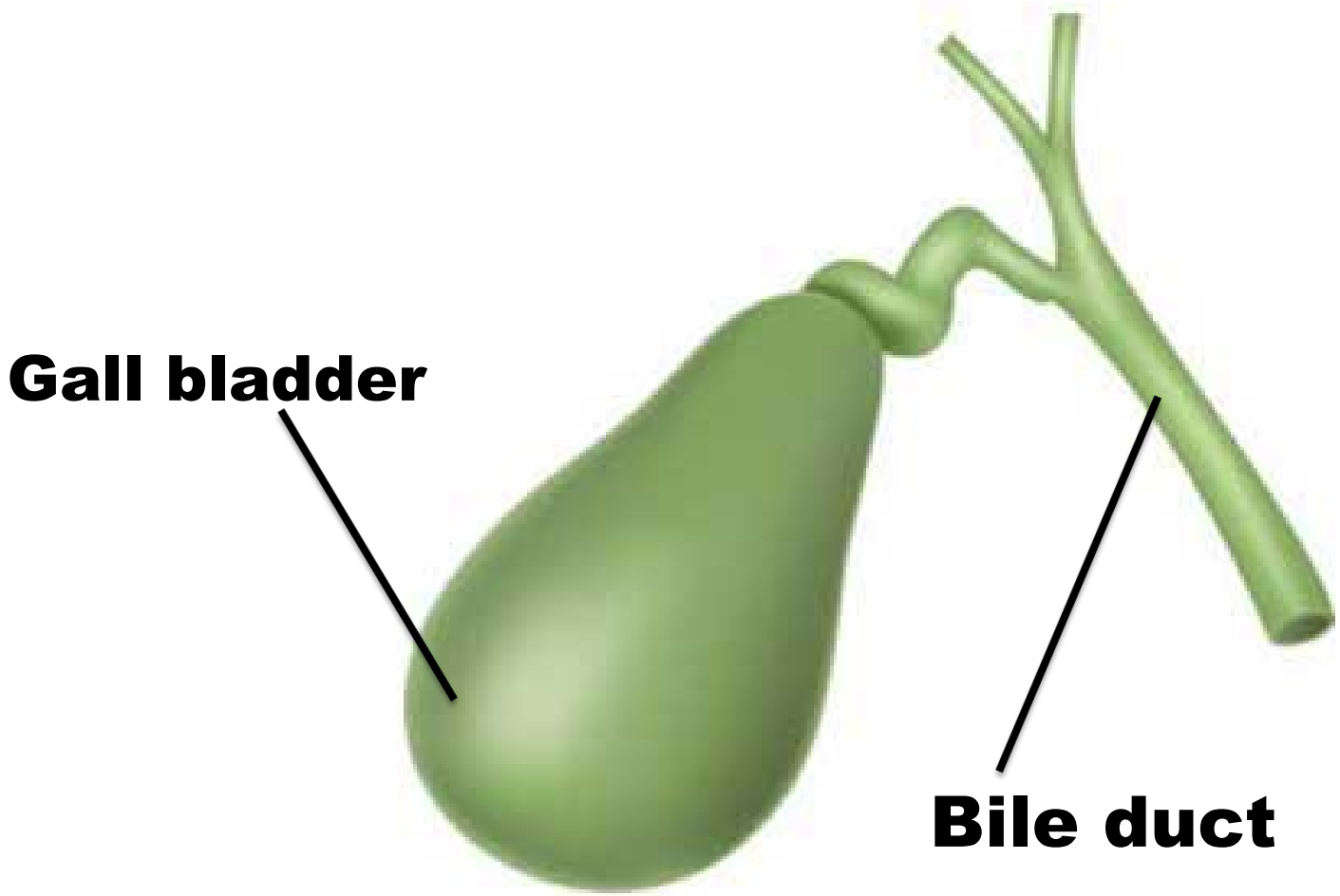
# The liver is the largest internal organ



# Gall bladder



# Gall bladder

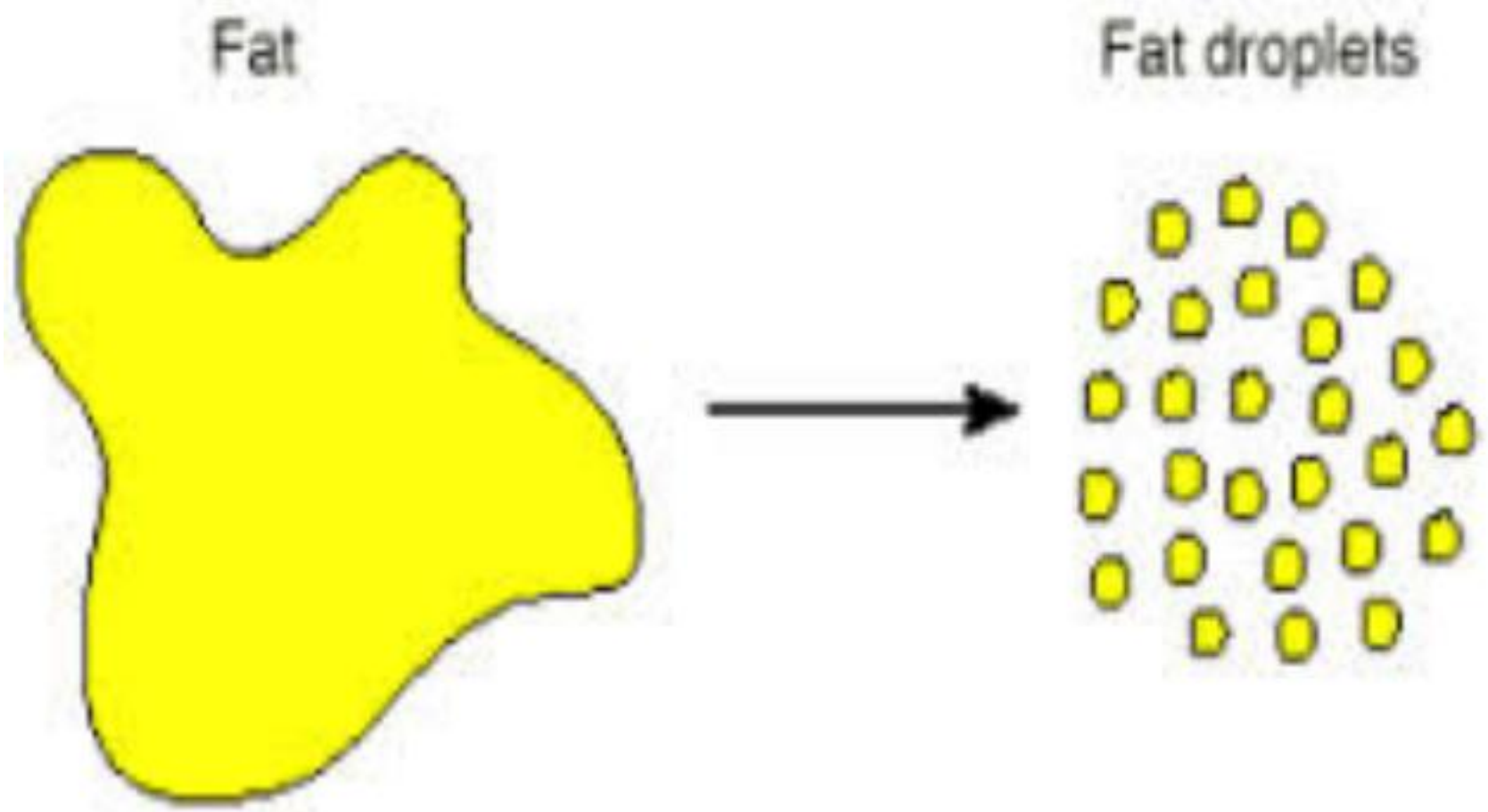


# The gall bladder stores bile

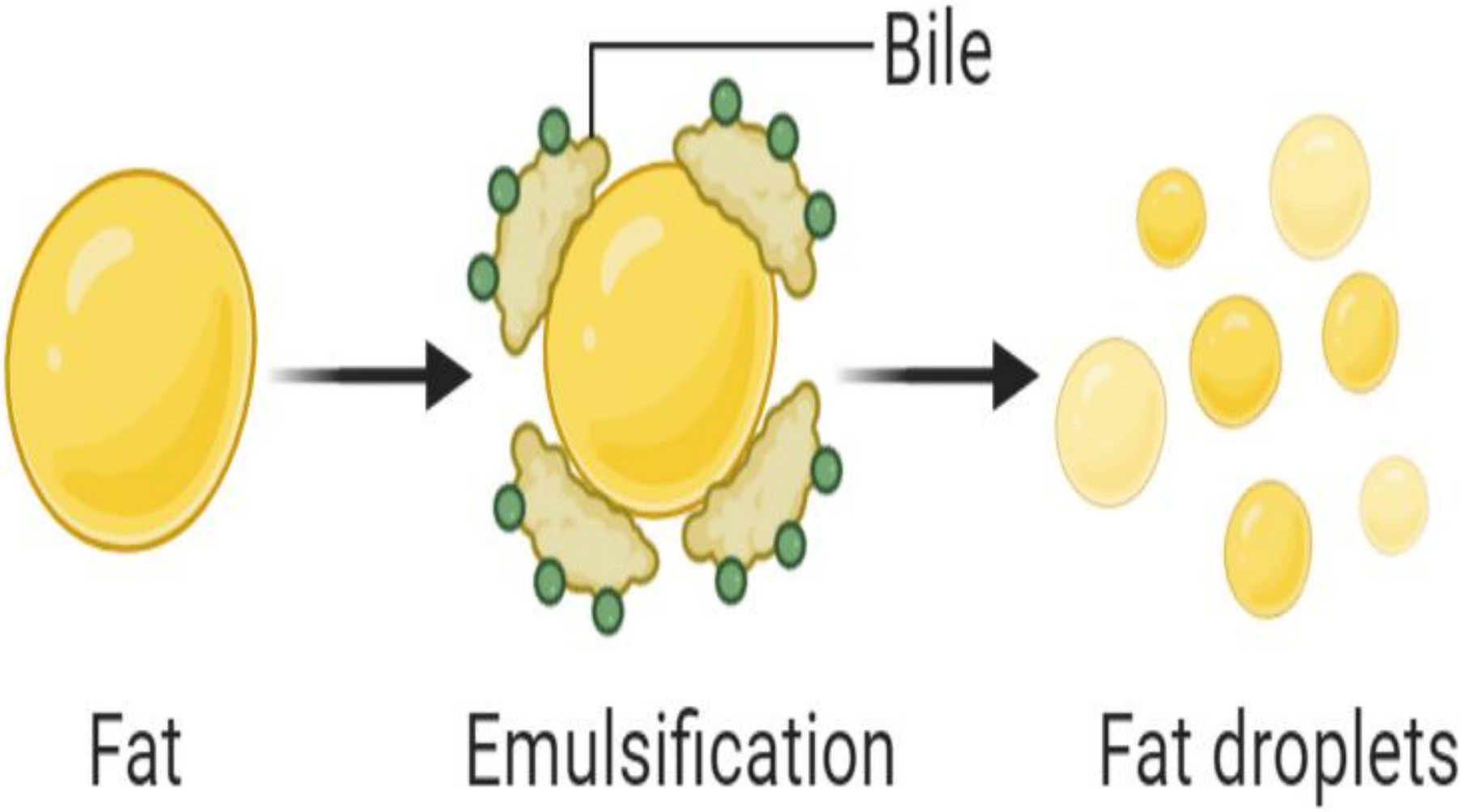


# Bile

## Bile salts help in the emulsification of fats



# Bile salts help to break down fats



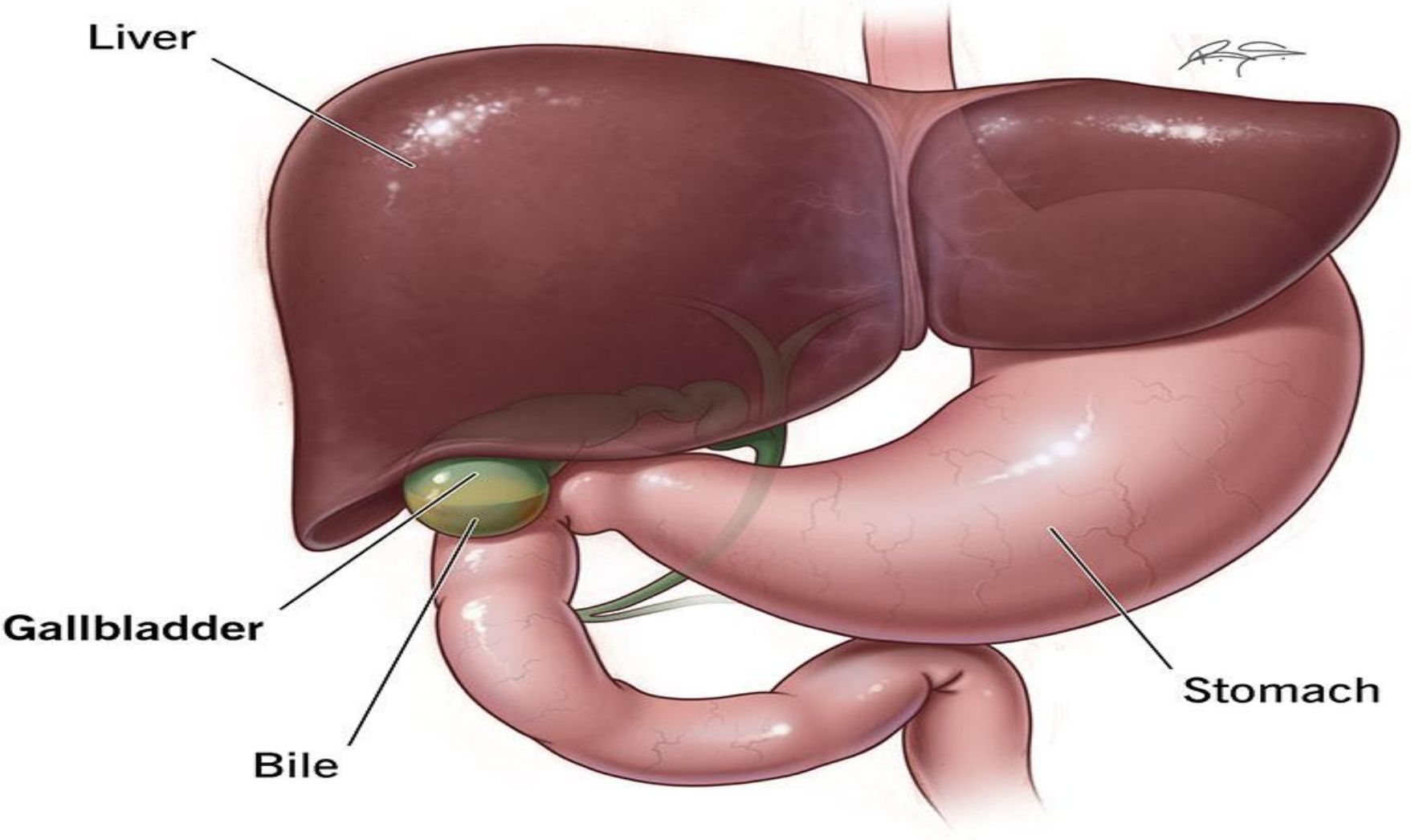
# Components of bile

- **Water**
- **Bile salts**

# Bile is released into the duodenum through the bile duct



# Activity



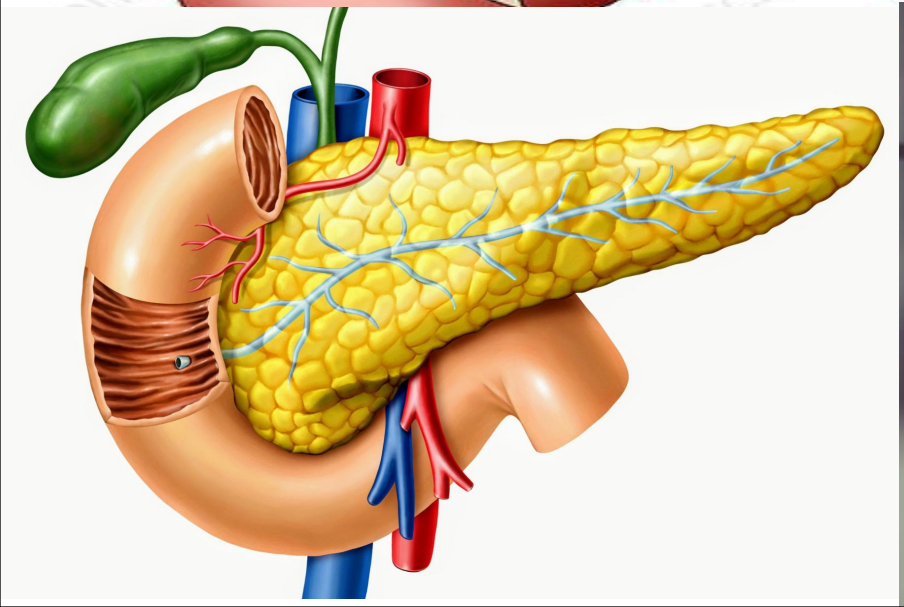
# ACTIVITY

- Name the organ that produces bile
- Give a functional difference between the gall bladder and the urinary bladder
- Write down any one component of bile
- Name the largest internal organ
- Why is the left kidney slightly higher than the right one?

# DIGESTIVE SYSTEM

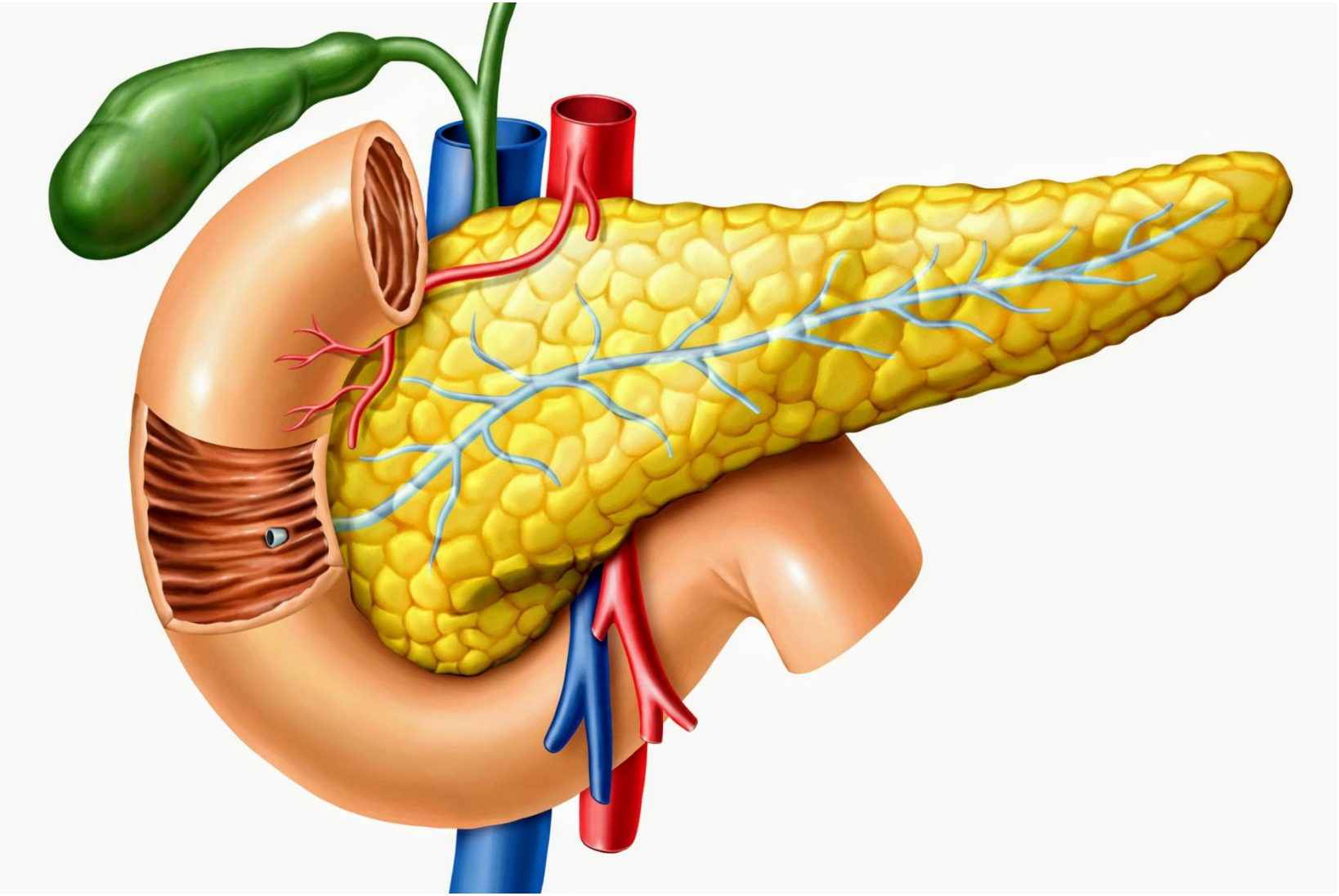


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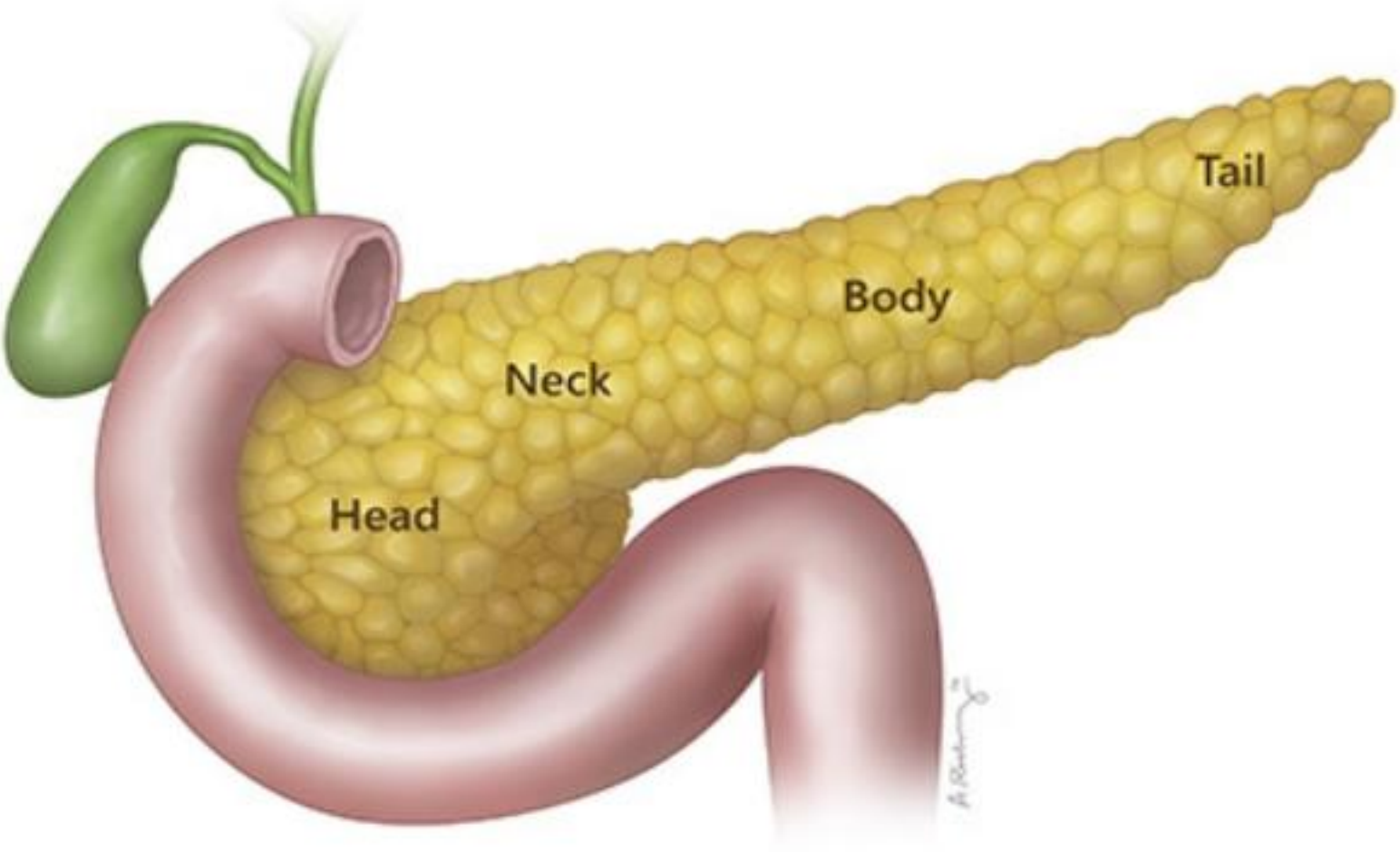




# Pancreas



# The pancreas produces pancreatic juice

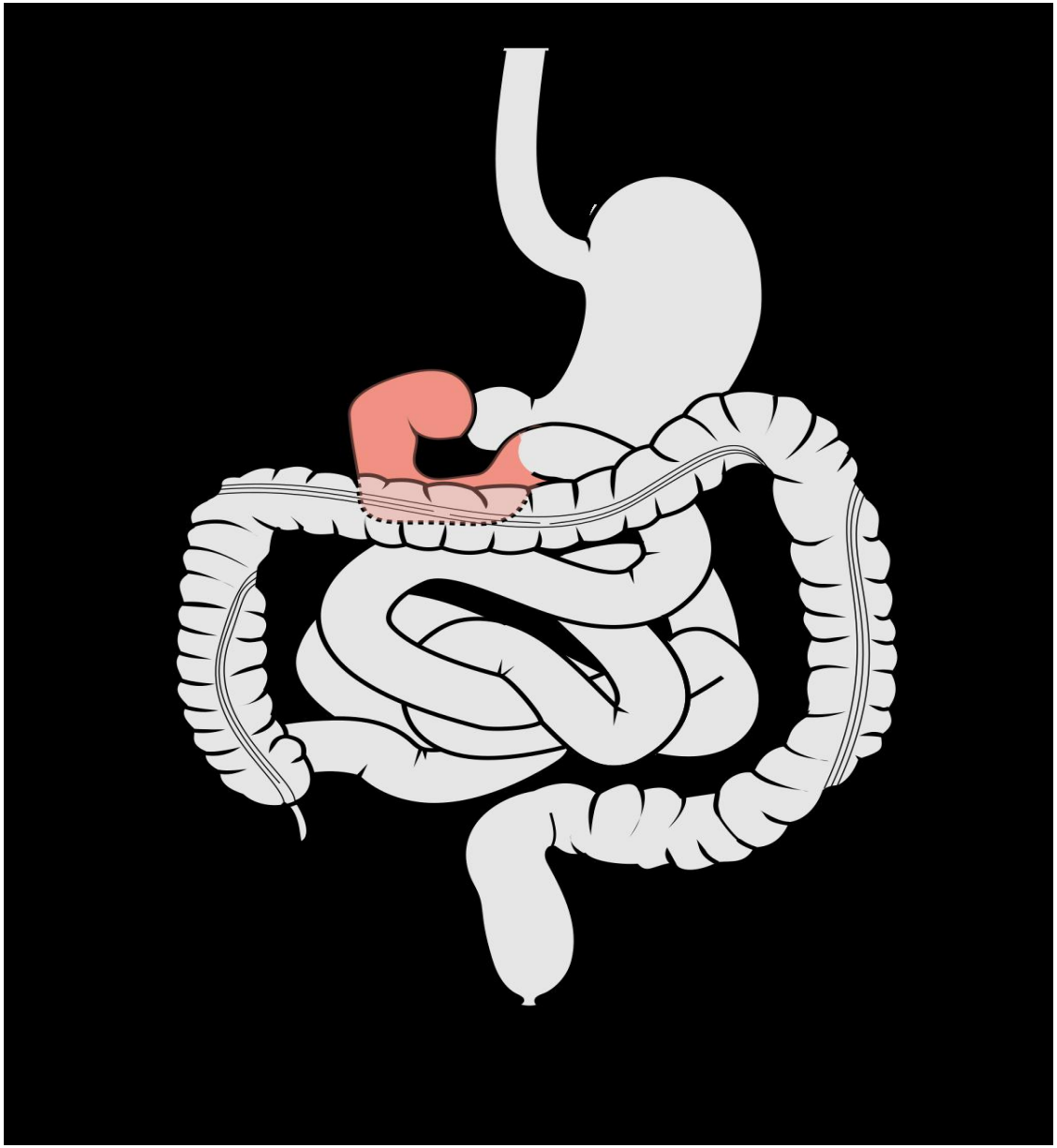



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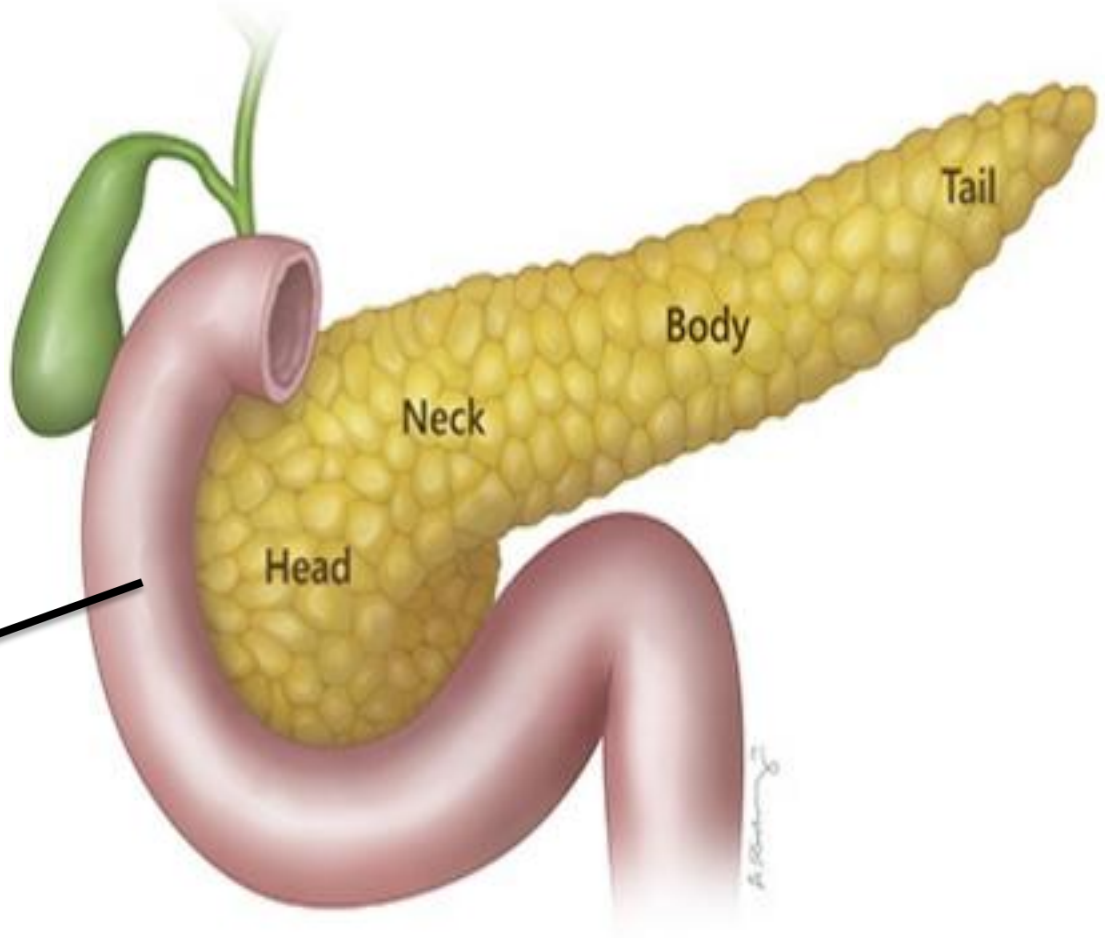
# Components of pancreatic juice

- **Pancreatic amylase**
- **Lipase**
- **Trypsin**
- **Water**

# Duodenum



# The duodenum is the first part of the small intestines




Duodenum

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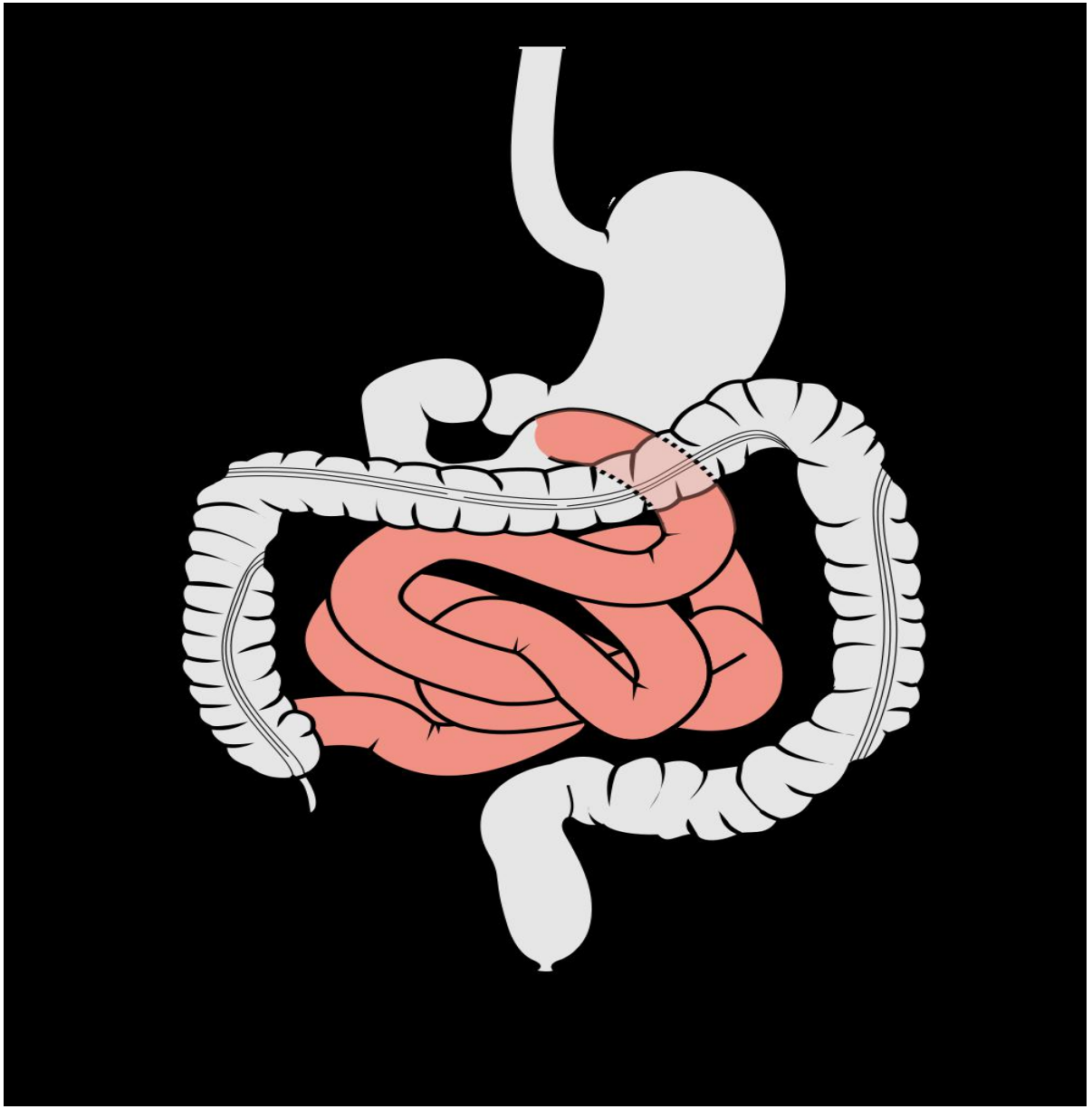
# NB

**Chemical digestion of fats starts in the duodenum**

# check point

**Give a difference between duodenum and diaphragm**

# ileum



# ileum

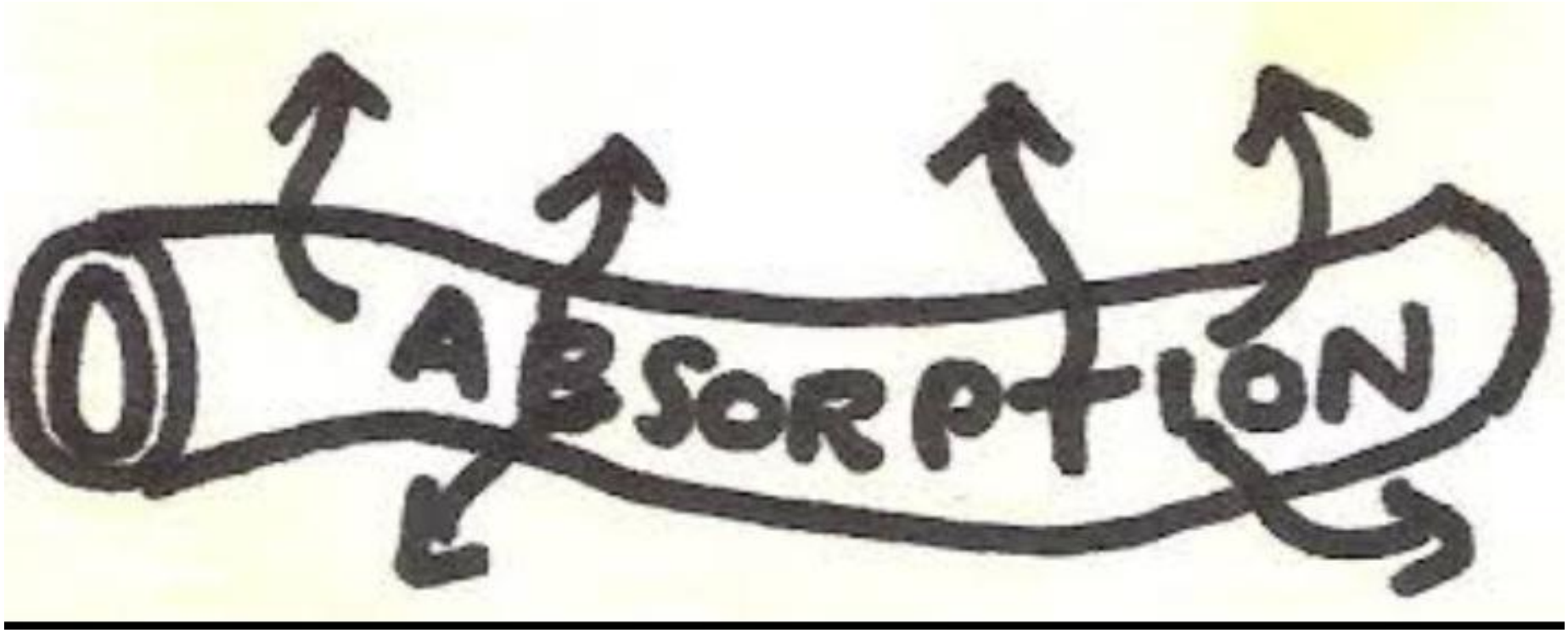


# The duodenum and the ileum form the small intestines



# Ileum

**This is where absorption of food takes place**



# Where does digestion of food:

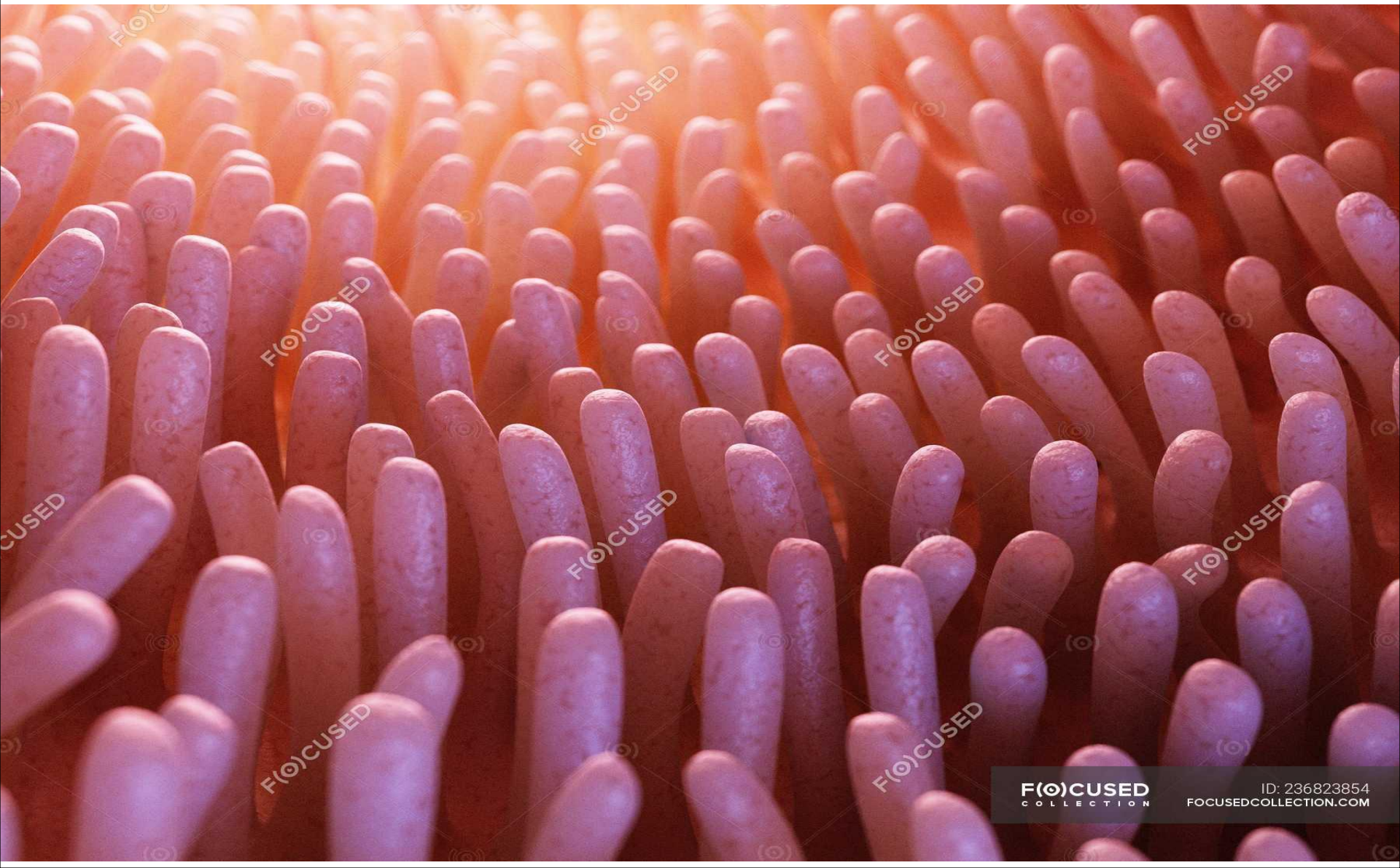
**Begin** **Mouth**

**End** **ileum**

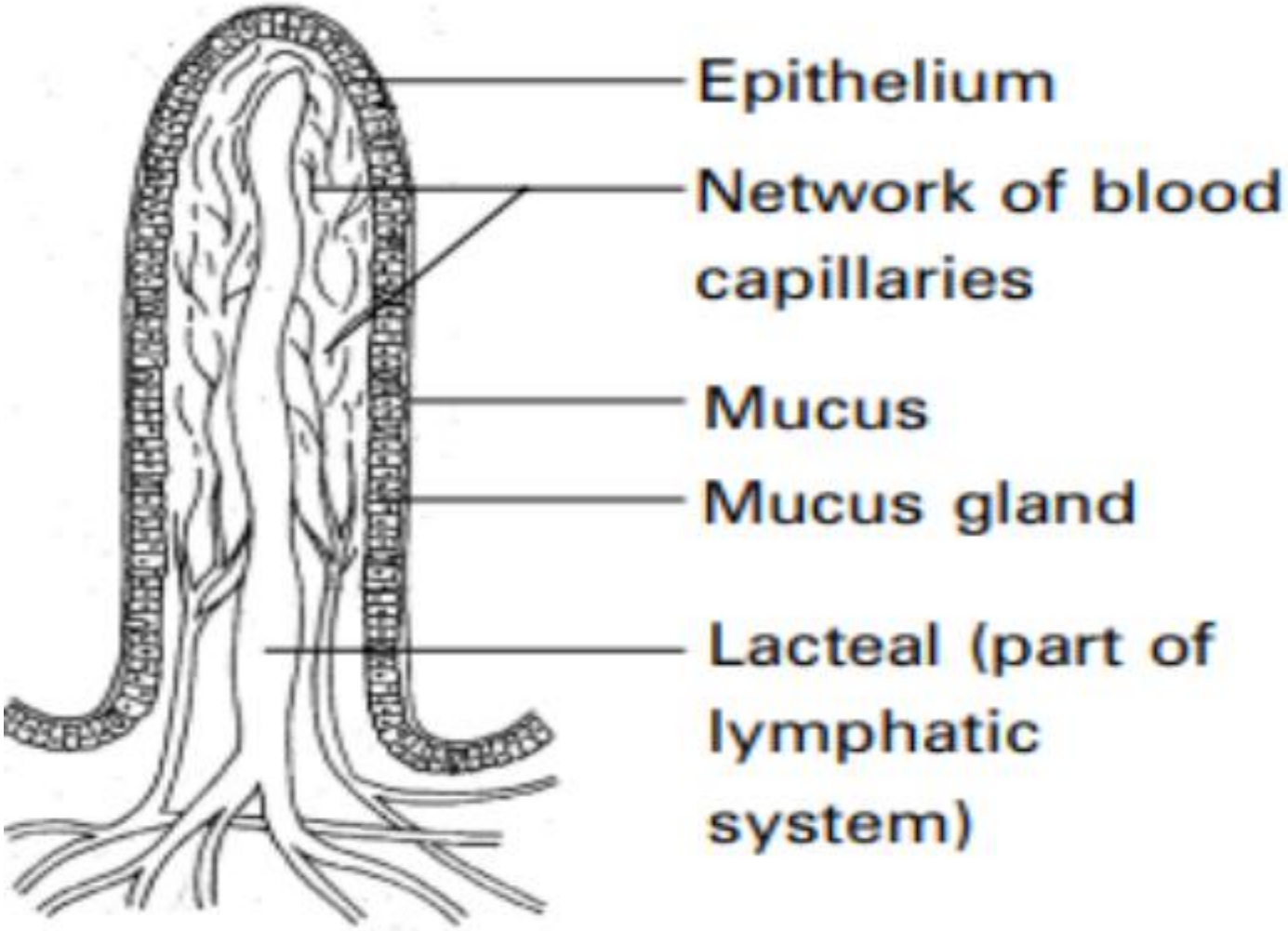
# Adaptations of the ileum to its function of absorbing food

- **The ileum  is long enough to increase the surface area for food absorption**
- **The ileum contains villi that help in food absorption**
- **The ileum has enzymes that complete the process of digestion**

# Villi



# Villi




**Schematic diagram of a villus**

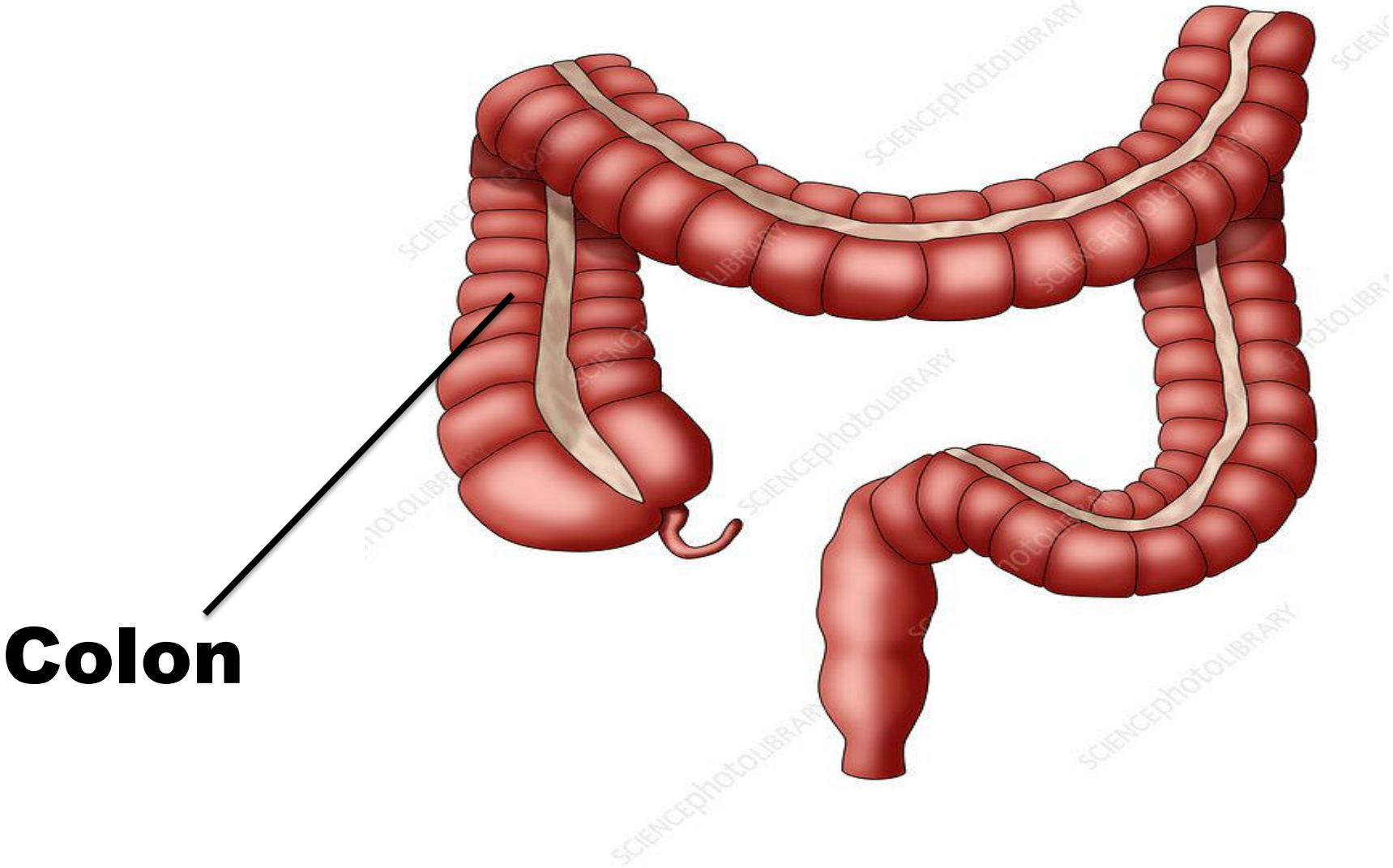
# Adaptations of the villi to their function

- The villi are many in number to increase the surface area for food absorption
- The villi have thin walls for easy diffusion of digested food
- The villi contain microvilli that also increase the surface area for food absorption
- They are surrounded by blood capillaries for easy exchange of materials

# Villi are many in number to increase the surface area for food absorption



# Colon



# Colon

Colon


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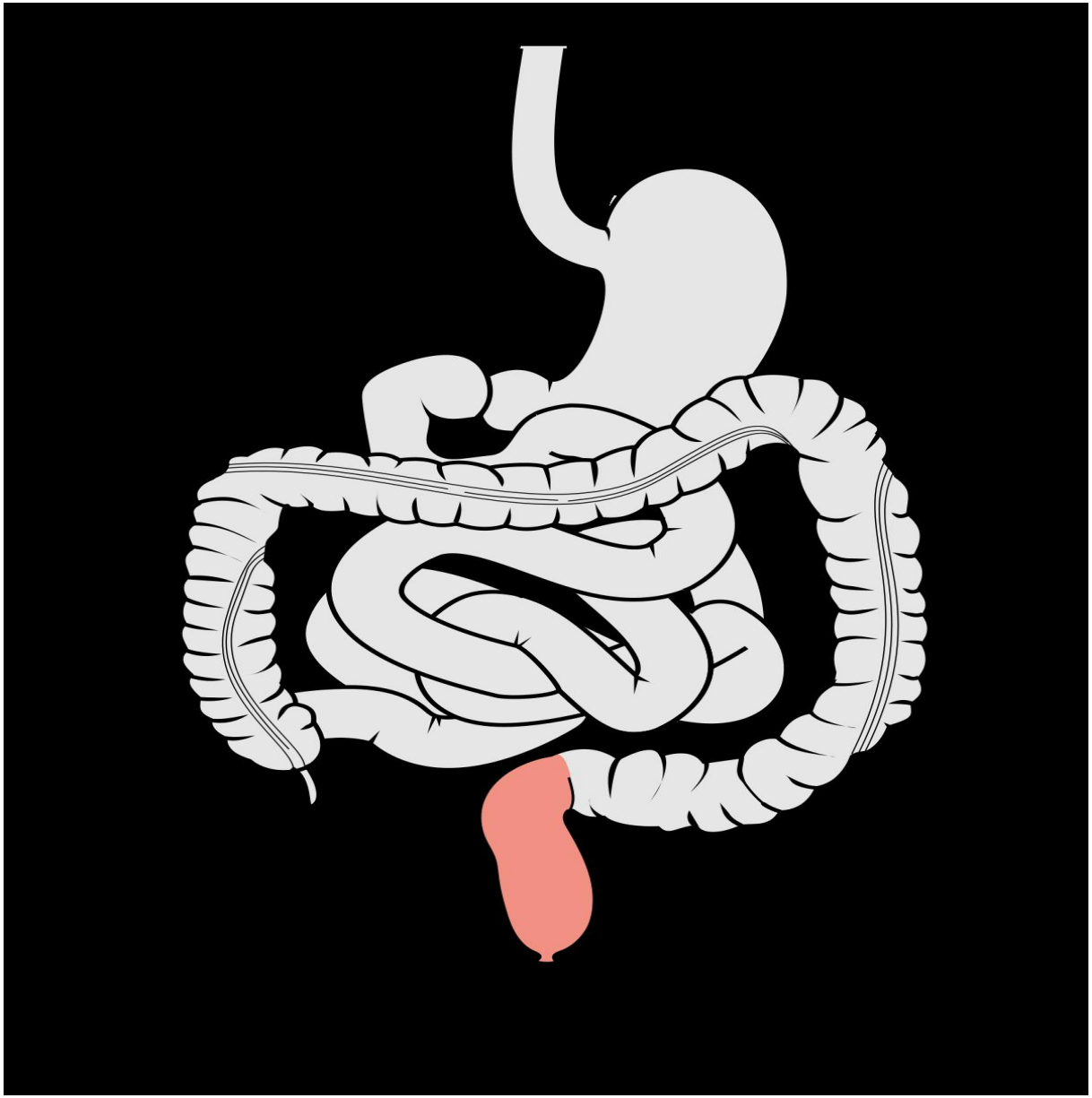
# This is where reabsorption of water takes place



# The colon and the rectum form the large intestines



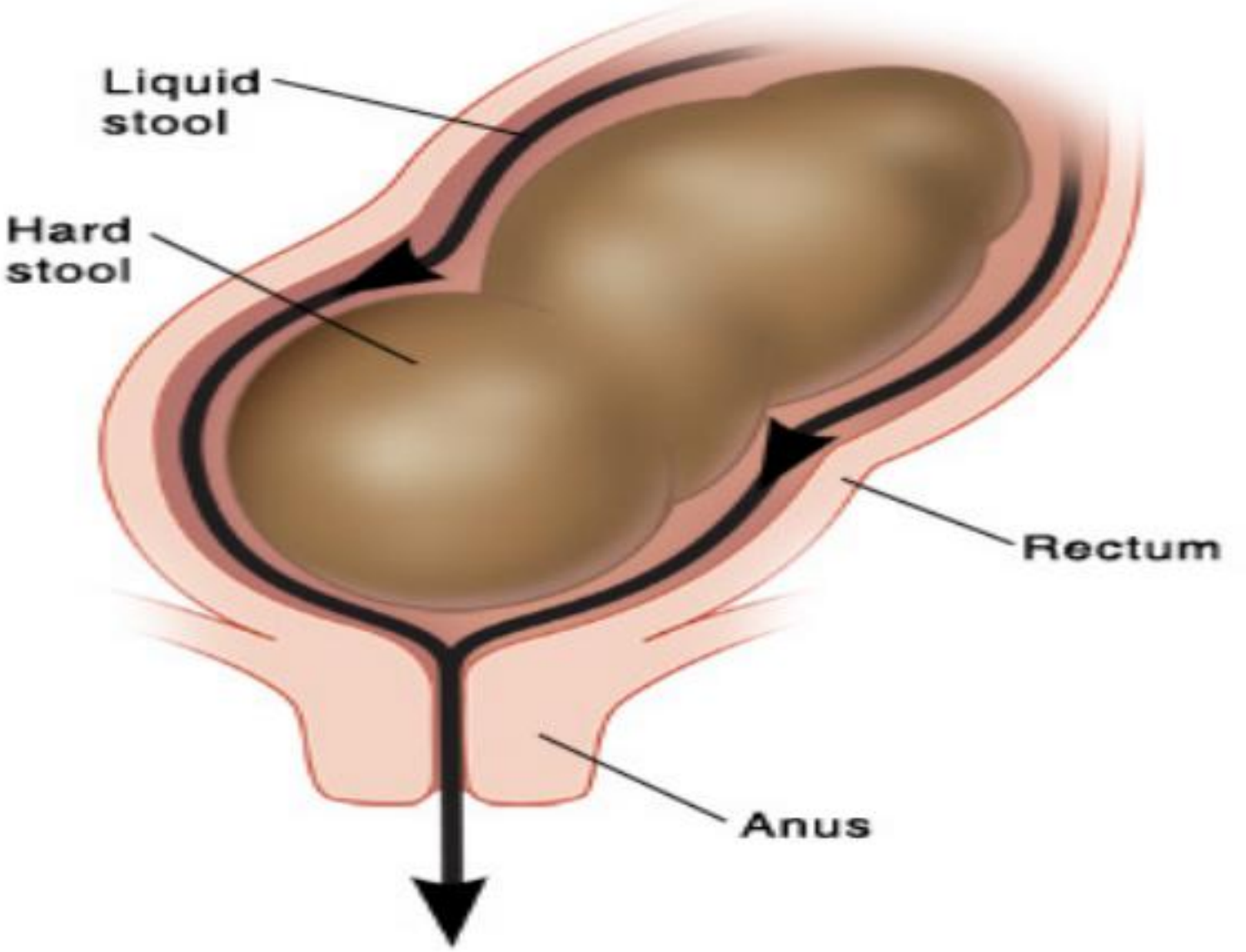
# Rectum



# The rectum stores stool for sometime



# The longer stool stays in the rectum, the harder it becomes



# Anus

## It is an outlet for stool



# ACTIVITY

- Where in the body do each of the following end?

i) Digestion

ii) Alimentary canal

- What name is given to the first part if the small intestines?

- What is meant by emulsification of fats?

- Besides killing germs on food, how else is hydrochloric acid useful?

- Write down any two adaptation of the ileum to its function

# DIGESTION



**This is the process by which food is broken down into simple soluble particles that can be absorbed into the blood stream**



# TYPES OF DIGESTION

**Mechanical digestion**

**Chemical digestion**

# MECHANICAL DIGESTION

**This is the physical break down of food by teeth and churning.**

**Where does mechanical digestion occur?**

**Mouth**

**Stomach**

# CHEMICAL DIGESTION

**This is the break down of food by enzymes and bile salts**

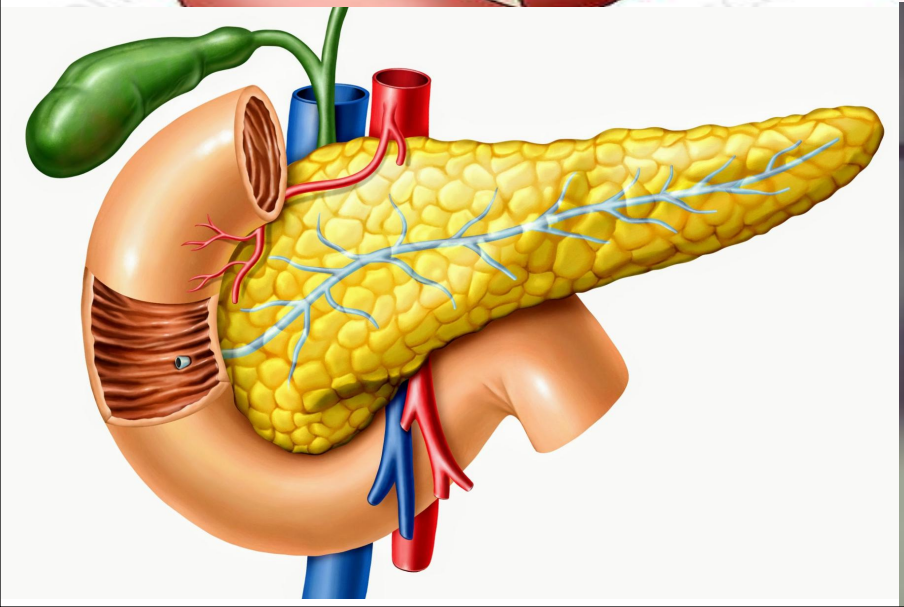
**Where does chemical digestion occur?**

- **In the mouth by the action of the salivary amylase (ptyalin)**
- **In the stomach (pepsin and rennin)**
- **In the duodenum (bile, pancreatic enzymes) and then in the ileum.**

# DIGESTIVE SYSTEM

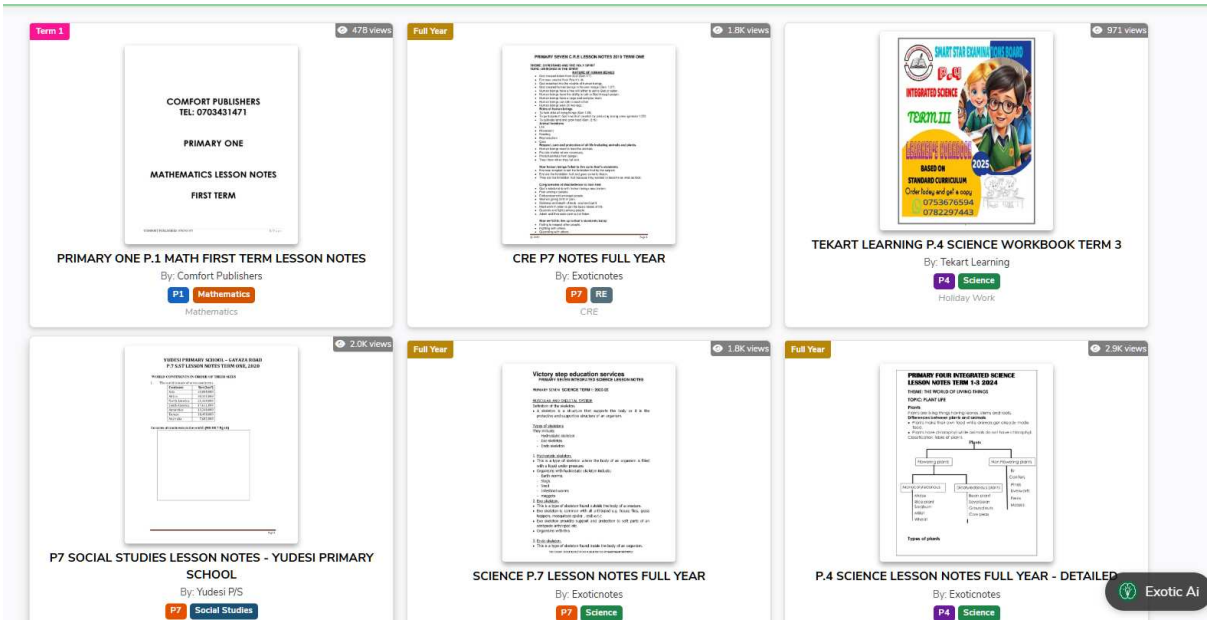


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