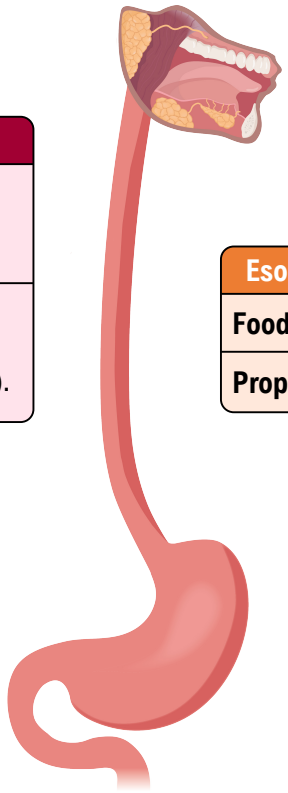
## TOPIC: ORGANS OF THE GASTROINTESTINAL TRACT

### Mouth and Esophagus

◆ Digestion starts in the _____:

| Mouth | First site of digestion. |
|---|---|
| **Mechanical Digestion** | Chewing w/ _____ & wetting w/ _____. |
| **Chemical Digestion** | Saliva contains amylase (_____) & lipase (lipids). |



| Esophagus | Connects mouth to stomach. |
|---|---|
| **Food name** | _____ |
| **Propulsion** | _____ |

**EXAMPLE**

Answer the following questions about digestion in the mouth and esophagus.

**a.** Which accessory organ(s) help with chemical digestion in the mouth? _____

**b.** Which accessory organ(s) help with mechanical digestion in the mouth? _____

**c.** Does digestion occur in the esophagus? Y / N

**PRACTICE**

True or False: if false, choose the answer that best corrects the statement.

Digestion of carbohydrates starts in the esophagus.

a) True.

b) False, digestion of carbohydrates starts in the mouth with salivary amylase.

c) False, digestion of carbohydrates starts in the mouth with salivary lipase.

d) False, digestion of carbohydrates starts in the small intestine.

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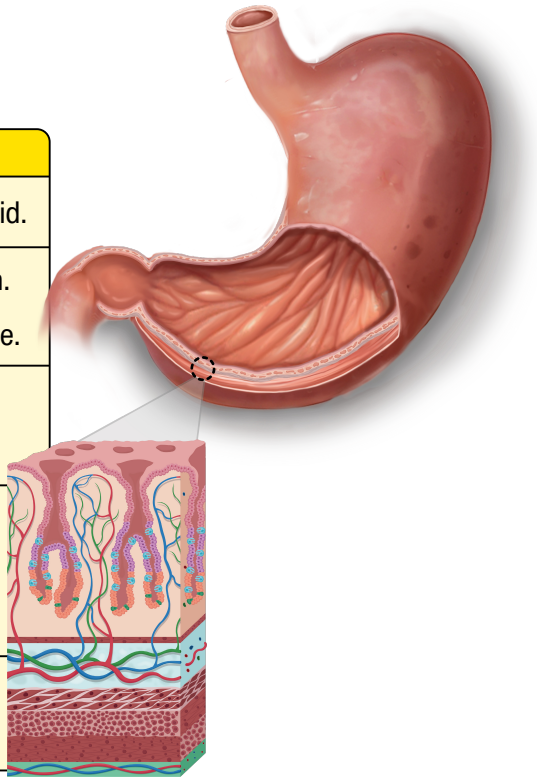
### Stomach

| Stomach | Muscular __-_____ organ that can expand. |
|---|---|
| **Food name** | _____ – mix of broken-down food and digestive fluid. |
| **Structures** | **Esophageal sphincter:** between esophagus & stomach.<br>**Pyloric sphincter:** between stomach & _____ intestine. |
| **Mechanical Digestion** | Peristalsis _____. |
| **Chemical Digestion** | Stomach _____ → denatures proteins.<br>_____ → pepsin – digests protein.<br>Gastric _____ → digests fat. |
| **Features** | Tissue is protected by _____.<br>Gastric glands secrete gastric _____. |



## EXAMPLE

Answer the following questions about digestion in the stomach.

a) What type of digestion takes place in the stomach: mechanical, chemical, or both? _____

b) For each type of digestion explain how it occurs in the stomach in a few words. If it does not occur, leave the line blank.

   i. Mechanical digestion: _____

   ii. Chemical digestion: _____

c) Which macronutrient undergoes the most digestion in the stomach? _____

## PRACTICE

Gastric juice is highly acidic. How is stomach tissue protected from this acid?

a) Mucous prevents gastric juice from being in direct contact with the tissue.

b) Gastric juice is secreted in its inactive form and only becomes active when it touches food.

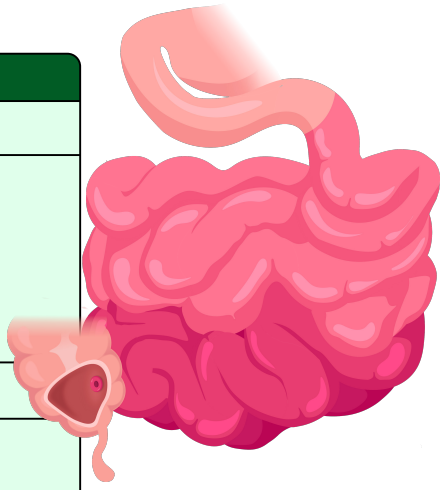
c) Gastric pits also released bicarbonate to neutralize the acid.

d) Peristalsis mixes the gastric juice into the chyme before it has a chance to interact with the tissue.

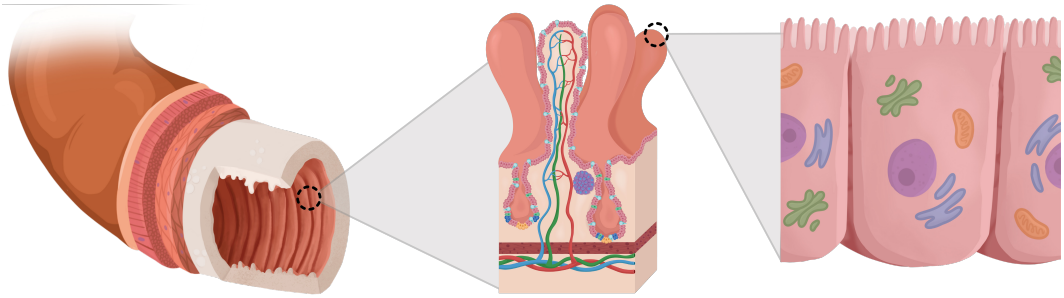
## TOPIC: ORGANS OF THE GASTROINTESTINAL TRACT

### Small Intestine

| Small Intestine | 20 foot tube named for its small diameter. |
|---|---|
| **Food name** | Chyme. |
| **Structures** | **Duodenum:** _____ area.<br>**Jejunum:** digests and absorbs.<br>**Ileum:** absorbs.<br>**Ileocecal sphincter:** between small & large intestine. |
| **Mechanical Digestion** | Peristalsis & _____. |
| **Chemical Digestion** | _____: from the gallbladder; _____ fat.<br>_____ **juice:** from pancreas.<br>◆ Amylase, _____, protease. |
| **Features** | **Villi:** finger-like projections that ___ surface area.<br>**Microvilli:** membrane projections that create a _____ border.<br>**Brush border enzymes:** _____ enzymes finish digestion. |



**DJ Ileum feels the peristaltic pulse.**



**EXAMPLE**

Identify specific features of the small intestine that improve its ability to absorb nutrients. How do these structures aid in absorption?

_____

_____

_____

**PRACTICE**

Which of the following statements is true regarding the small intestine?

I) The small intestine is divided into three main sections.

II) Much of the chemical digestion in the small intestine is performed by enzymes that are released by the gallbladder.

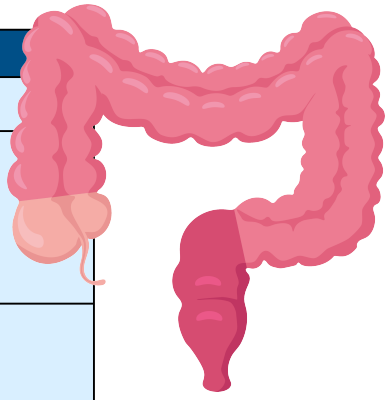
III) Brush border enzymes are attached to the microvilli.

a) I & II. b) II & III. c) I & III. d) I, II, & III.

## TOPIC: ORGANS OF THE GASTROINTESTINAL TRACT

### Large Intestine

| Large Intestine | 5 foot tube named for its diameter. |
|---|---|
| **Food Name** | _____. |
| **Structures** | **Cecum:** _____ like structure at connection to sm. int.<br>**Colon:** main site of _____ absorption.<br>**Rectum:** temporarily stores feces before excretion. |
| **Absorption** | _____, minerals (sodium & potassium), & some vitamins (K, B1, B7, & B12). |
| **Defecation** | _____ food expelled as feces. |
| **Features** | *Gut microbiome*: ecosystem of _____. |



**EXAMPLE**

A major role of the large intestine is to remove excess water from undigested food.

**a.** If the large intestine removes too much water from the undigested food, how will that affect the feces?

_____

**b.** If the large intestine removes too little water from the undigested food, how will that affect the feces?

_____

**PRACTICE**

Which of the following statements below correctly describes the role of the large intestine.

I) Digest carbohydrates with brush border enzymes.

II) Absorb water, minerals, & vitamins.

III) Create feces.

a) I & II. b) II & III. c) I & III. d) I, II, & III.