

Digestive System & Endocrine System

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BIO-210 Intro To Anatomy & Physiology

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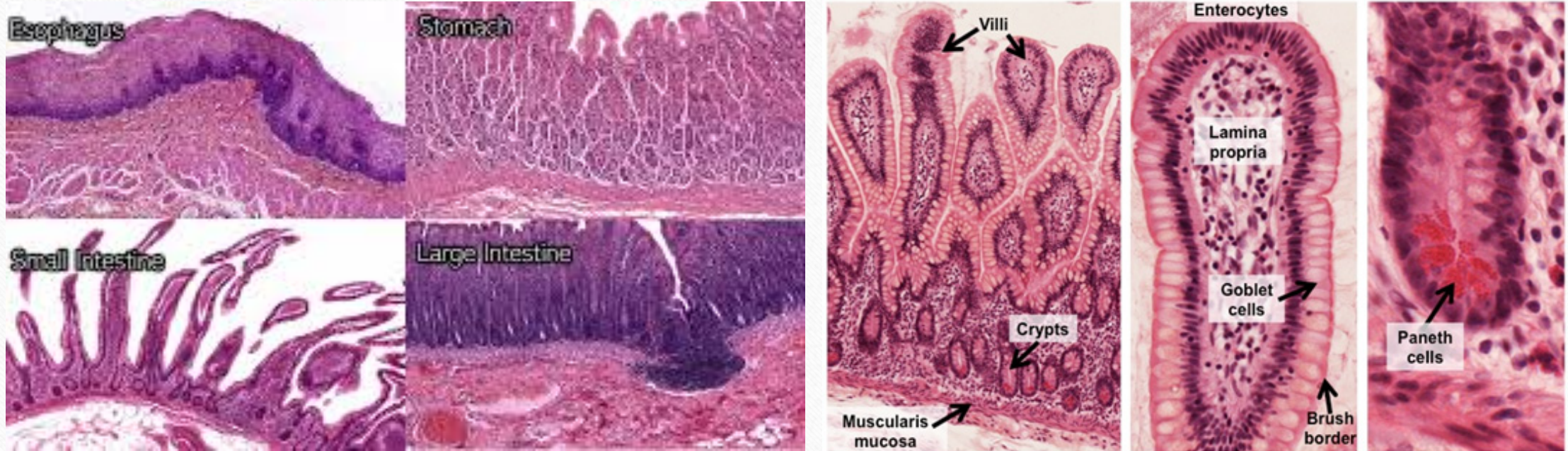
The Organ System's Location

- Mouth: The digestive system begins at the mouth
- Pharynx
- Esophagus is a muscular tube that runs from the pharynx to the stomach
- Stomach is a sac located on the left side of the abdomen
- Small Intestine
- Large Intestine is a wider tube that is also located in the abdomen

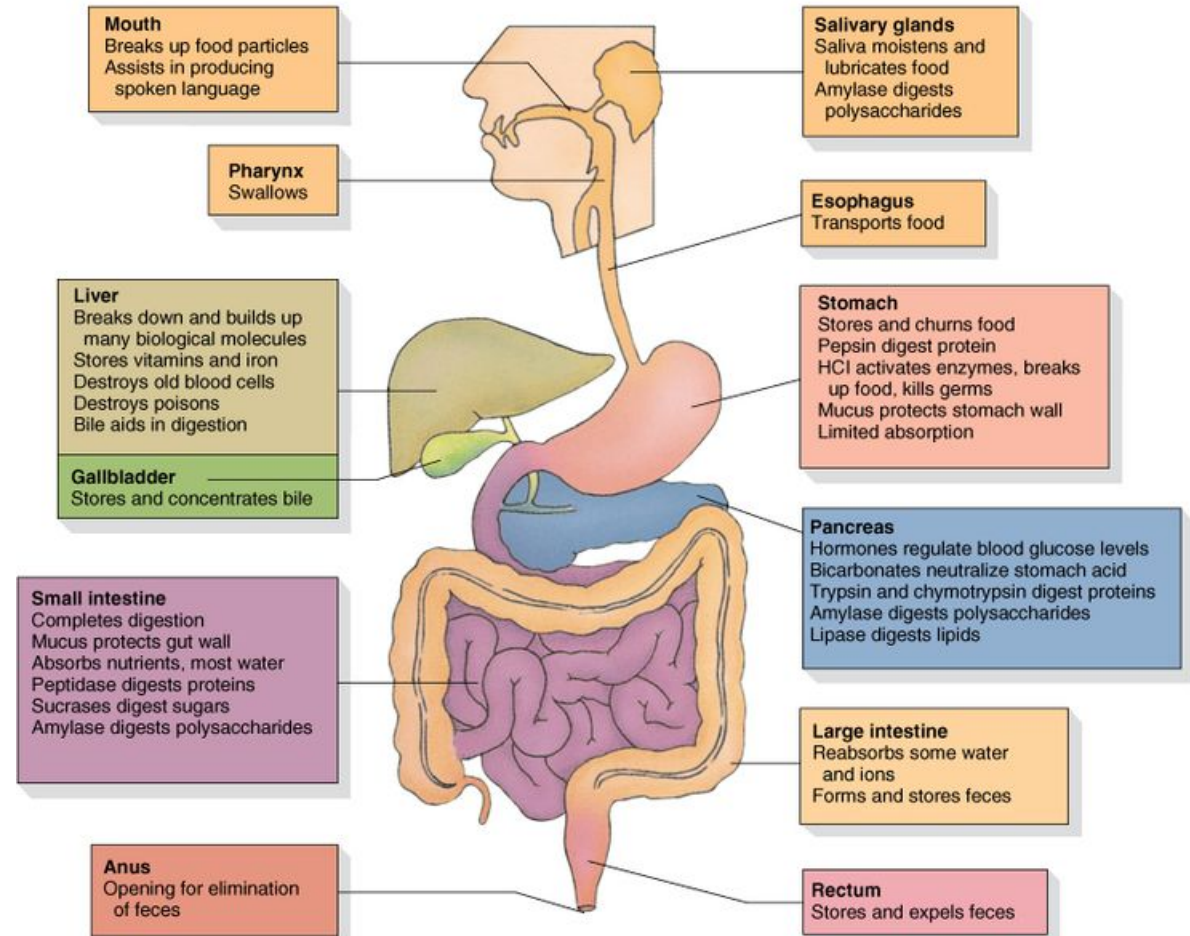
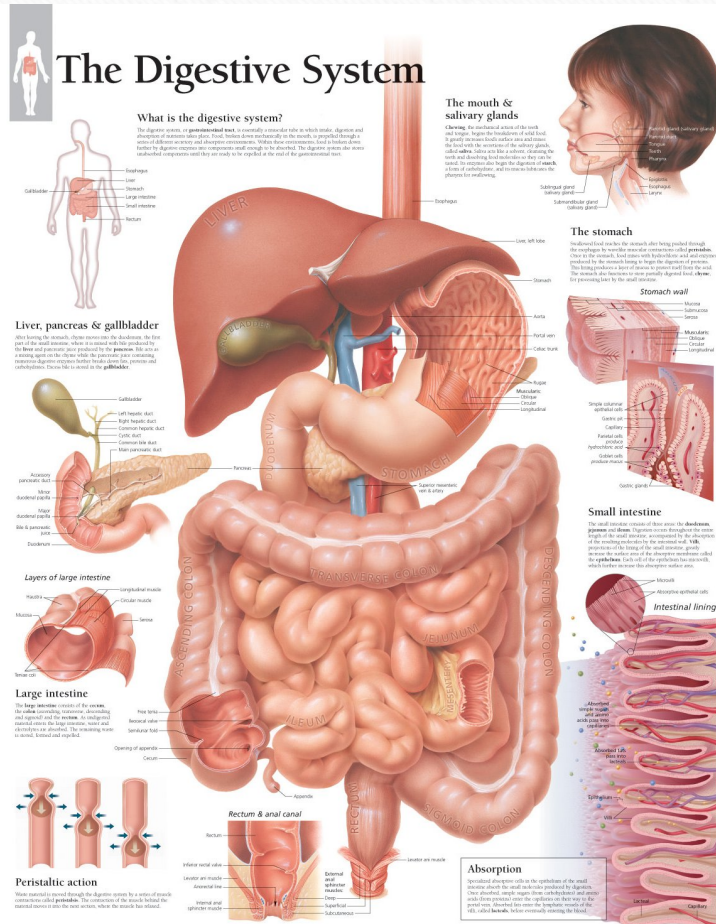
Organs, Structures, Key Cell & Tissue Types

- Mouth
- Pharynx and Esophagus
- Stomach
- Small Intestine
- Large Intestine
- Epithelial Tissue
- Smooth Muscle Tissue
- Goblet Cells
- Enterocytes
- Secretory Cells
- Immune Cells

Key Cells & Tissue Types of The Digestive System



The Digestive System



Major Physiological Functions

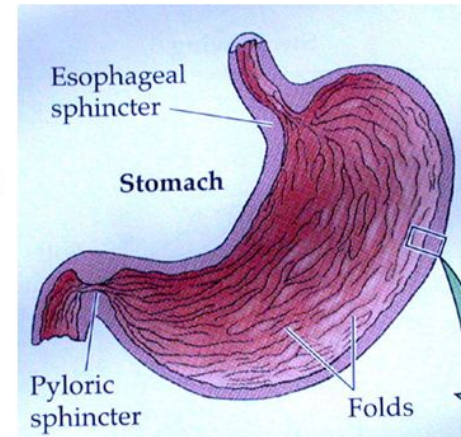
The digestive system plays a vital role in maintaining the health of an individual.

- Ingestion
- Mechanical digestion
- Chemical digestion
- Absorption
- Elimination
- Control and regulation

Functions Of The Stomach

- Muscular walls contract to churn and mix food, continuing **mechanical digestion**.
- Walls secrete **hydrochloric acid**, producing a $\text{pH} < 2$. This is a defense mechanism that kills microorganisms.
- **Pepsin** is the main enzyme of the stomach. It breaks down long polypeptides into smaller pieces. It is secreted as pepsinogen, a denatured form of the protein that becomes active only at low pH.
- Stomach walls are protected by a thick layer of **mucus**. If worn away, ulcers can develop.
- The **pyloric sphincter** controls the exit of **chyme** (partially digested food) from the stomach

Stomach



The Digestive And Endocrine Systems

The digestive and endocrine systems interact closely to regulate several physiological functions.

- Control of digestion
- Glucose regulation
- Lipid metabolism
- Protein metabolism
- Absorption of nutrients
- Control of hunger and satiety

Dependence Of The Human Body

The dependence of the human body on the relationship between the digestive and endocrine systems is significant in maintaining overall health and well-being.

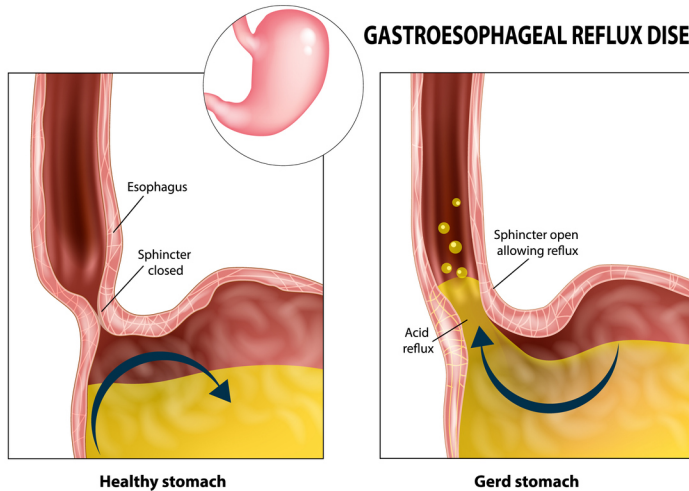
- Nutrient absorption and utilization
- Energy regulation
- Control of hunger and satiety
- Body weight regulation
- Maintenance of fluid and electrolyte balance
- Homeostasis

Common Medical Issues And Diseases

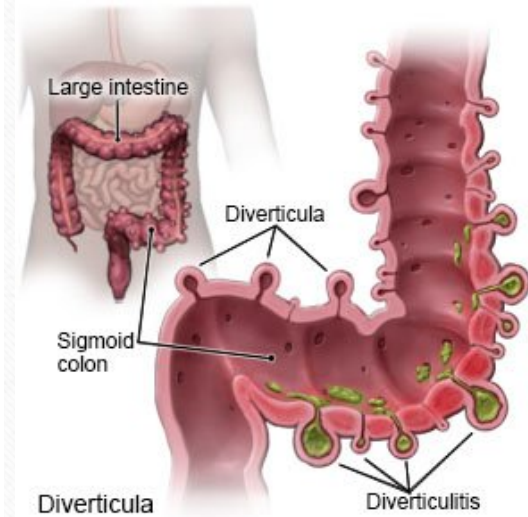
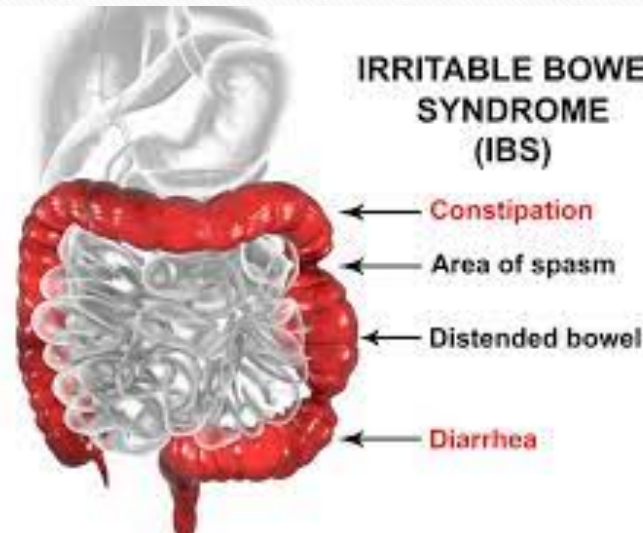
- The digestive system is vulnerable to several conditions and diseases that can affect its normal functioning.
- Gastroesophageal reflux disease (GERD)
- Irritable bowel syndrome (IBS)
- Inflammatory bowel disease (IBD)
- Diverticulitis
- Gastrointestinal infections
- Gastroparesis

Common Diseases

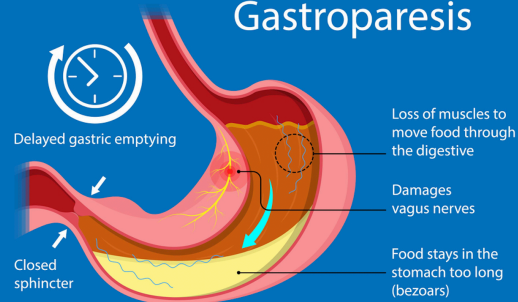
GASTROESOPHAGEAL REFLUX DISEASE



IRRITABLE BOWEL SYNDROME (IBS)



Gastroparesis



Signs and Symptoms

- Feeling full soon after starting a meal
- Abdominal bloating or abdominal pain
- Feeling nausea or vomiting
- Weight loss and malnutrition
- Heartburn

Implications

- Impairment of digestive function
- Nutrient deficiencies
- Malabsorption and malnutrition
- Dehydration
- Chronic health problems
- Psychological impact

The Cause(s) Of The Condition Or Disease

- Genetics
- Lifestyle factors
- Medical conditions
- Infections
- Use of certain medications
- Structural abnormalities

Prevalence

- Digestive disorders are a common health problem in the United States, affecting millions of individuals annually.
- High incidence
- Age-related increase
- Racial and ethnic disparities
- Gender differences
- Lifestyle factors
- Economic impact

References

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