

## DIGESTIVE SYSTEM

### MAIN GROUPS

- **GI TRACT:** mouth, pharynx, esophagus, small/large intestine, anus
- **ACCESSORY ORGANS:** teeth, salivary glands, pancreas, liver, gallbladder

### GI TRACT WALL

- **Mucosa** - innermost
  - Surface epithelium
  - Lamina propria (connective tissue)
  - Smooth muscle
- **Submucosa**
  - Connective tissue w/ blood vessels, nerve endings, lymphatics
- **Muscularis externa**
  - Smooth muscle
  - Circular layer
  - Longitudinal layer - outer
- **Serosa** - outermost
  - Visceral peritoneum - innermost, wraps canal organs
  - Parietal peritoneum - outer, lines abdominopelvic cavity

### TONSILS

- **Palatine**
- **Lingual**

### TEETH

- 2 sets: deciduous (baby), permanent
- **Incisors:** cutting
- **Canines:** tearing/piercing
- **Premolars:** grinding
- **Molars:** grinding
- **REGIONS:**
  - **Crown**
    - Enamel
    - Dentin - bulk of tooth
    - Pulp cavity - CT, blood vessels, nerve fibers
  - **Neck**
  - **Root**
    - Cementum - covers outer surface; attaches tooth to periodontal membrane

### SALIVARY GLANDS

- **Parotid glands**
- **Submandibular glands**
- **Sublingual glands**

## PHARYNX

- Passageway for food, fluid, air
- 3 parts:
  - **Nasopharynx:** not part of digestive
  - **Oropharynx:** posterior to oral cavity
  - **Laryngopharynx:** connected to esophagus
- 2 layers of wall:
  - Longitudinal – inner
  - Circular – outer
- Stratified squamous epithelium

## ESOPHAGUS

- Food passageway; uses peristalsis
- Runs from pharynx to stomach
- Stratified squamous epithelium

## STOMACH

- Storage for food, mechanical breakdown, chemical breakdown
- REGIONS:
  - **Cardiac region (cardia):** food enters stomach from esophagus
  - **Fundus:** dome-shaped
  - **Body:** midportion
  - **Pylorus:** funnel-shaped terminal end
- OTHER REGIONS:
  - **Lesser curvature:** concave medial surface
  - **Greater curvature:** convex lateral surface
  - **Lesser omentum:** attaches liver to lesser curvature
  - **Greater omentum:** attaches greater curvature to posterior body wall
- **Gastric glands:** secrete gastric juice
  - Hydrochloric acid
  - Protein-digesting enzymes
  - Mucus
- Stomach mucosa: simple columnar epithelium
  - Mucous neck cells: produce mucus
  - Gastric glands: in gastric pits; secrete gastric juice
  - Chief cells: produce protein-digesting enzymes
  - Parietal cells: produce hydrochloric acid
  - Enterendocrine cells: produce gastrin

## SMALL INTESTINE

- Digestive and absorptive functions
- Extends from pyloric sphincter to ileocecal valve
- Three subdivisions:

- **Duodenum:** attached to stomach, curves around head of pancreas
- **Jejunum:** attaches to duodenum
- **Ileum:** extends from jejunum to large intestine
- Ileocecal sphincter = transition b/w small and large intestine
- 3 structural modifications:
  - **Microvilli:** tiny projections of plasma membrane
  - **Villi:** fingerlike structures formed by mucosa
  - **Circular folds:** deep folds of mucosa and submucosa

#### LARGE INTESTINE

- Reabsorb water and compact material into feces
- SUBDIVISIONS:
  - **Cecum:** saclike first part of large intestine
  - **Vermiform appendix**
  - **Colon**
    - **ASCENDING:** travels up right side of abdomen
    - **TRANSVERSE:** travels across abdominal cavity
    - **DESCENDING:** travels down left side
    - **SIGMOID:** enters pelvis
  - **Rectum**
  - **Anal canal**
- Goblet cells produce alkaline mucus → lubrication
- Teniae coli: muscularis externa layer reduced to 3 bands of muscle
- Haustra: pocket-like sacs of the walls
- Anus: opening of large intestine

#### PANCREAS

- Extends across abdomen from spleen to duodenum
- Produces digestive enzymes and hormones (insulin, glucagon)
- Pancreatic duct penetrates duodenal wall

#### LIVER

- Divided into 4 lobes
- Produces bile – breaks up fats into smaller globules
- Connected to gallbladder via common hepatic duct
- Picks up fats/fatty acids

#### GALLBLADDER

- Small sac on interior surface of liver
- Stores bile when digestion is not occurring

#### DEGLUTITION (SWALLOWING)

- Buccal phase: voluntarily controlled, initiated by tongue
- Pharyngeal-esophageal phase: occurs through peristalsis, resulting in delivery of food to stomach