

## *Alimentary Canal and Accessory Digestive Organs*

- **Alimentary canal:** mouth, pharynx, esophagus, stomach, small, and large intestines
- **Accessory digestive organs:** teeth, tongue and those with ducts (gallbladder, salivary glands, liver, and pancreas)

## *Digestive Processes*

1. **Ingestion:** occurs in the mouth
2. **Propulsion:** movement of food
  - a. **Peristalsis:** major means of propulsion
3. **Mechanical digestion:** prepares food for chemical digestion
  - a. Chewing, churning food in stomach and segmentation (rhythmic local constrictions of intestine)
4. **Chemical Digestion:** mouth, stomach, and small intestine
5. **Absorption:** transport of digested nutrients (blood/lymph)
6. **Defecation:** elimination of indigestible substances as feces

## *Peristalsis and Segmentation*

- **Peristalsis:**
  - Major means of propulsion
  - Adjacent segments of alimentary canal relax and contract
- **Segmentation:**
  - Rhythmic local contractions of the intestine
  - Nonadjacent
  - Mixes food with digestive juices

## *The Peritoneal Cavity and Peritoneum*

- **Peritoneum**—a serous membrane
  - **Visceral Peritoneum**—surrounds digestive organs
  - **Parietal Peritoneum**—lines the body wall
- **Peritoneal cavity**—a slit like potential space
- Some abdominal organs, or portions of them, are **retroperitoneal** (i.e., outside of the peritoneum)

## *Mesenteries*

- **Mesentery**—a double layer of peritoneum attached to posterior abdominal wall
  - Holds organs in place, fat storage, route for blood vessels/nerves
- **Greater Omentum**—a “fatty apron” of peritoneum

- **Lesser Omentum**—attaches to lesser curvature of stomach

## *Alimentary Canal Wall* (fig. 23.7)

- The **mucosa**—innermost layer
  - Lining the lumen
  - Produces mucous
  - Speeds up passage
- The **submucosa**—contains blood vessels, lymphatic vessels and nerve fibers
  - Made up of CT
  - Body of gland that feeds into the lumen
- The **muscularis externa**: longitudinal and circular smooth muscle
- The **serosa**: visceral peritoneum
  - Composed of epithelium and CT

## *The Mouth and Associated Organs* (fig. 23.11)

- The mouth=oral cavity
- The lips and cheeks are formed from the **orbicularis oris** and **buccinators muscles**, respectively
- A major site of mechanical digestion (chewing)
- A minor site of chemical digestion (amylase begins to break down starches)
- Moistens food (saliva)

## *The Tongue* (fig. 23.12)

- Composed of interlacing fascicles of skeletal muscle
- Grips, mixes and repositions food
- **Tongue Papillae**
  - *Filiform papillae*
    - No taste buds
  - *Fungiform Papillae*
  - *Circumvallate Papillae*
    - Located at the back of the tongue
- Terminal sulcus: border between mouth and pharynx
- Posterior one-third of tongue lies in oropharynx
  - Lined with lingual tonsil

## *The Teeth*

- 20 **Deciduous teeth**: first appear at 6 months
- 32 **Permanent teeth**: most erupt by the end of adolescence
  - Dental formula: 2I, 1C, 2P, 3M
- Know Internal Structure—**Dentin**

## *The Salivary Glands*

- Produce saliva and amylase
- *Paired*, extrinsic salivary:
  - **Parotid Gland**
    - Parotid duct is parallel to the zygomatic arch
  - **Submandibular Glands**
    - Medial surface of mandible
  - **Sublingual glands**
    - Floor of oral cavity

## *Oropharynx, Laryngopharynx, and Esophagus*

- **Oropharynx and laryngopharynx**
  - Passages for air and food
  - External layer of pharyngeal constrictor muscles
- **Esophagus (food only)**
  - Begins as a continuation of the pharynx
  - Joins the stomach inferior to the diaphragm
    - **Cardiac sphincter**—closes to prevent stomach acid from entering esophagus
  - Has many mucous glands
  - Skeletal muscle first third of length

## *The Stomach*

- Food is churned into **chyme** (~4 hours)
- Secretion of **pepsin**: protein digestion
  - Functions under acidic conditions
- **Regions**:
  - Cardiac
  - Fundus
  - Body
  - Pyloric
- The muscularis externa has 3 layers
- Mucosa dotted with gastric pits
  - Gastric glands—deep to gastric pits

## *Microscopic Anatomy of the Stomach*

- Gastric glands of fundus and body:
  - Mucous neck cells
    - Secrete a special mucus
  - Parietal (oxyntic) cells