DIGESTIVE SYSTEM

I. OVERVIEW OF THE DIGESTIVE SYSTEM

A. Gastrointestinal tract (G-I tract) (Fig. 24.1) These form the “tube” through which food passes. Use the torso models to observe these structures.

- Oral cavity
- Pharynx (fare-rinks)
- Esophagus
- Stomach
- Small intestine
- Vermiform appendix
- Large intestine (colon)

B. Accessory structures (Fig. 24.1) These structures are not part of the “tube,” but assist the digestive process in various ways. Use the half-head models and torso models.

- Salivary glands
- Teeth
- Tongue
- Liver
- Gallbladder
- Pancreas

C. Layers of the gut wall (Fig. 24.4) Study these on the illustration and on a torso model’s stomach.

- Mucosa
- Submucosa (illustration only)
- Muscularis
  - Longitudinal muscle layer
  - Circular muscle layer
  - Oblique muscle layer (not shown; found only in stomach)
- Serosa
  - Adventitia (not shown; the outer loose connective tissue covering if no serosa is present)
II. DIGESTIVE ORGANS

A. Mouth

1. **Oral cavity** soft structures and palate (Fig. 24.6) Observe these on the half-head models and/or a small mirror.

   - Lips
   - Superior vestibule
   - Frenulum of upper lip*
   - Gingiva
   - Hard palate
   - Soft palate (also called the “vellum”)
   - Fauces
   - **Uvula** (yoo-vu-la)
   - Frenulum of tongue
   - Frenulum of lower lip*
   - Inferior vestibule

   *Illustration only

2. Salivary glands and ducts (Fig. 24.9) Use the torso model’s half-head, right and left sides, and other half-head models.

   - Parotid glands
   - Parotid ducts
   - Submandibular glands
   - Submandibular ducts
   - Sublingual glands

B. Teeth

1. **Permanent teeth (32)** (Fig. 24.7a) Learn these on human skulls and a torso model’s half head. Be careful to identify the teeth by starting from the central incisors, as the models and real skulls vary as to whether or not they have third molars (“wisdom teeth”).

   - Central incisors
   - Lateral incisors
   - Canine or cuspid
   - First and second premolars (bicuspids)
   - First, second, and third molars

2. **Deciduous teeth (20)** (Fig. 24.7b) These are on the illustration only. Know that they have no premolars or third molars.
3. Tooth anatomy (Fig. 24.8) Observe these on the large tooth model, except as noted.

- Anatomical crown
- Neck
- Root
- Enamel
- Dentin
- Pulp cavity
- Pulp (not labeled)
- Root canal
- Cusp
- Gingiva*
- Periodontal ligaments*  

*Poster of tooth

C. Stomach (Fig. 24.11) Use the stomach models on the torsos.

1. Parts of the stomach

- Cardiac part [or region]
- Lower esophageal sphincter (cardiac sphincter)
- Fundus
- Body
- Pyloric part [region]
- Pyloric sphincter
- Greater curvature
- Lesser curvature

2. Layers of the stomach wall (Fig. 24.11)

- Serosa (specifically, visceral peritoneum)
- Longitudinal muscle layer
- Circular muscle layer
- Oblique muscle layer
- Submucosa (not shown on models)
- Mucosa
  - Rugae (rue-jee; the bumpy folds of mucosa)
D. **Small Intestine** (Fig. 24.15) Use the torso models.

1. Three divisions of the small intestines

   **Duodenum** (1 foot), **Jejunum** (9 feet), **Ileum** (12 feet)

2. Features of the mucosa of the small intestine (Fig. 24.16) These may be seen on the illustration only, except for the circular folds, which are seen on the torso models. (Note that lacteals are blind-beginning lymphatic capillaries.)

   *Villus* (finger-like projections of the mucosa; plural is villi.)
   *Microvilli*
   *Blood capillaries*
   *Lacteal*
   *Circular folds*
   *Intestinal gland*
   *Duodenal gland*

E. **Liver** (Fig. 24.17) Use a torso model’s liver.

   *Left lobe*
   *Right lobe*
   *Falciform ligament* (a fold of visceral peritoneum)
   *Round ligament* (on underside; in fetal life, the umbilical vein)

F. **Gallbladder** (Fig. 24.18) Use a 200 torso model’s liver.

   *Right hepatic duct*
   *Left hepatic duct*
   *Common hepatic duct*
   *Cystic duct*
   *Common bile duct*

G. **Pancreas** (Fig. 24.18) Use a torso model.

   *Pancreatic duct*
   *Major duodenal papilla* (part of duodenum)
H. **Large Intestine (colon)** (Fig. 24.25) Use the torso models, except as noted.

Vermiform appendix
Cecum
Ileocecal valve
Ascending colon
Right colic flexure (Hepatic flexure)
Transverse colon
Left colic flexure (Splenic flexure)
Descending colon
Hastra (plural; singular is Hastrum)
Teniae coli (tee-nee-ee co-lie) (three strips of longitudinal muscularis)
Epiploic appendages*
Sigmoid colon
Rectum
Anal canal
Internal anal sphincter*
External anal sphincter*

*Illustration only
Optional notes on the digestive system

1. Orthodontists recommend that retainers be used at night indefinitely after orthodontic movement of the teeth has been completed, or permanent retainers can be cemented to the insides of the teeth. Why? The periodontal ligaments have long memories, they say.

2. The real human skulls in our lab have some interesting examples of impacted third molars and bone erosion.

3. The parotid duct opens beside the upper second molars, where it can be felt as a small bump.

4. The soft palate acts as a two-way valve. During normal breathing, it lies like a flap over the fauces (posterior opening of the oral cavity), so that even with the lips parted, air does not pass through the mouth. During swallowing or deliberately forcing air through the mouth (as in blowing up a balloon), it lifts up, securely closing the choanae (posterior openings of the nasal cavity).

5. A hiatal hernia occurs when the superior portion of the stomach pushes through the opening for the esophagus in the diaphragm.

6. The duodenum, jejunum, and ileum are distinguished by differences in their glands. While the duodenum is easy to locate, a surgeon may not be able to distinguish jejunum from ileum, due to its complex folding.

7. The round ligament of the liver is the remnant of the umbilical vein, which carries blood from the placenta to the fetus prior to birth.

8. Hemorrhoids are varicose veins of the anal canal.
Notes and Sketches