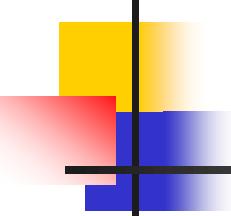




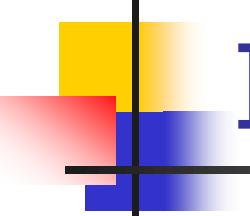
Digestive System

Gross Anatomy and Physiology



I. Introduction

- A. Base Function: Working with the circulatory system the digestive system provides the body with fuel.
- B. Main players:
 - 1. Digestive tract: oral cavity, pharynx, esophagus, stomach, small intestine, large intestine.
 - 2. Accessory organs: teeth, tongue,...



I. Introduction

- B. Main players:
 - 1. Digestive tract: oral cavity, pharynx, esophagus, stomach, small intestine, large intestine.
 - 2. Accessory organs: teeth, tongue, salivary glands, liver, and pancreas.

Major Components:

MOUTH(ORAL CAVITY)

PHARYNX

ESOPHAGUS

STOMACH

SMALL INTESTINE

LARGE INTESTINE (COLON)

RECTUM

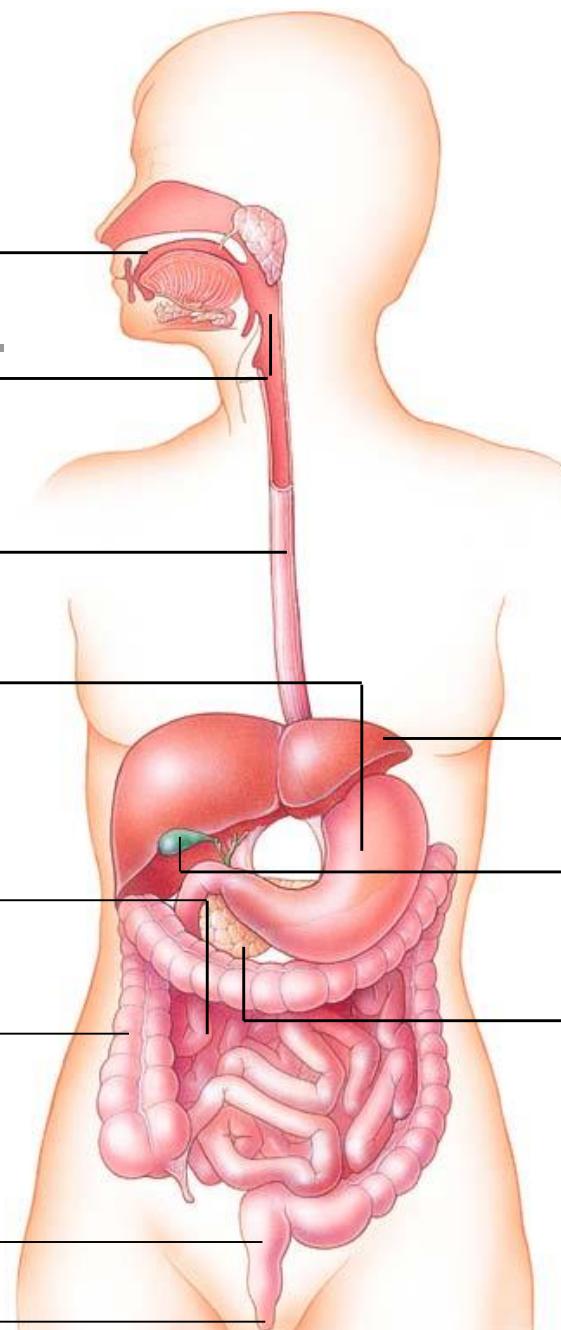
ANUS

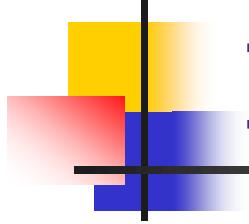
Accessory Organs:

LIVER

GALLBLADDER

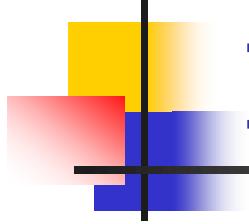
PANCREAS





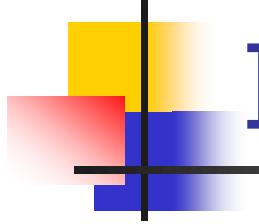
I. Introduction

- C. 6 Main Steps of Digestion
 - 1. Ingestion (eating)
 - 2. Mechanical Digestion - tearing and crushing by teeth, swirling and churning by stomach.
 - 3. Digestion - chemical breakdown of food into small molecules.
 - 4. Secretion - release of H₂O, acids, enzymes.



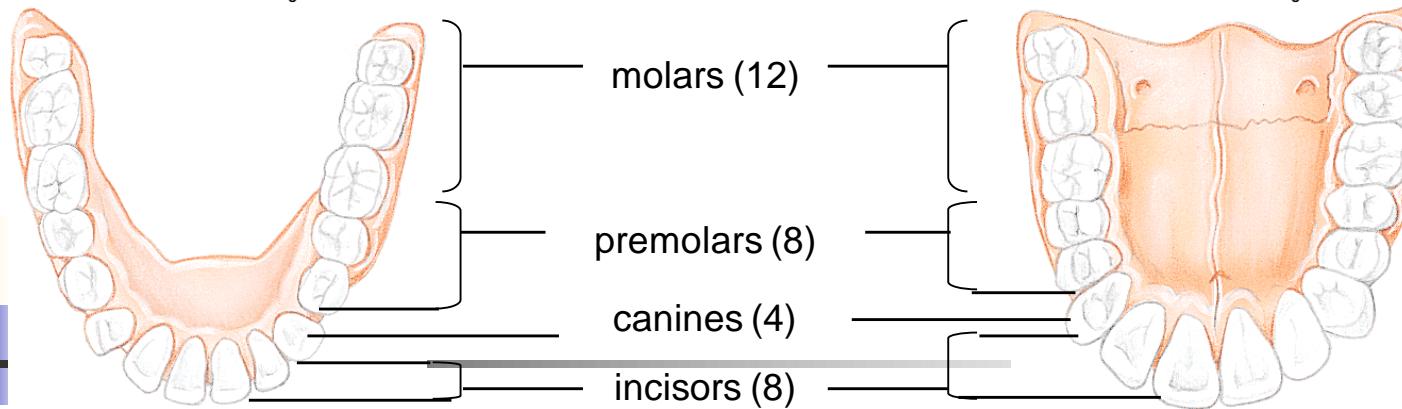
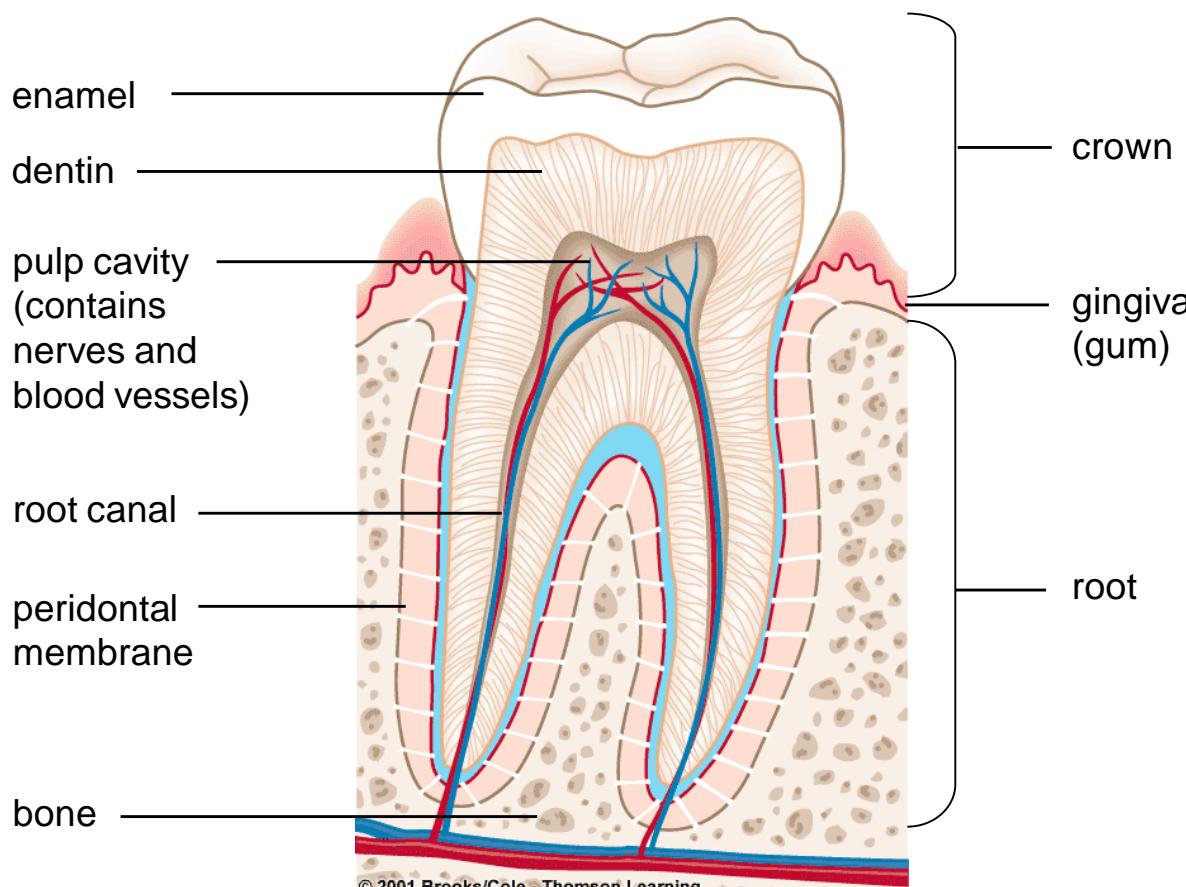
I. Introduction

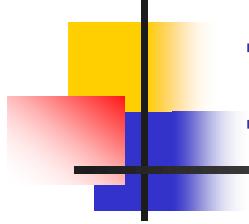
- C. 6 Main Steps of Digestion
 - 4. Secretion - release of H₂O, acids, enzymes.
 - 5. Absorption - Movement of digested food through the intestines into the body.
 - 6. Excretion - elimination of waste products (feces) from the body (defecation).



II. The Oral Cavity

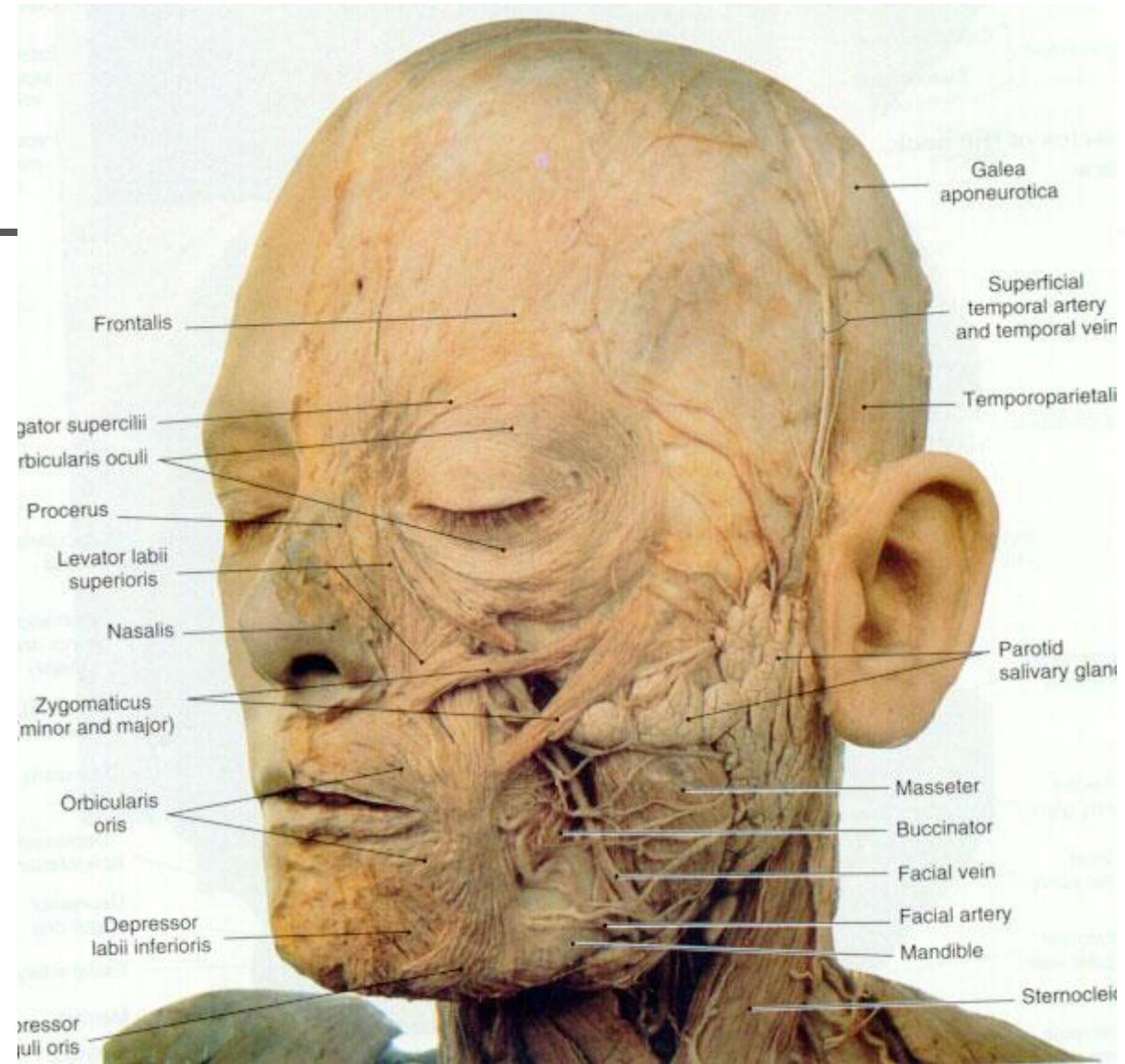
- A. Parts of:
 - 1. Mouth
 - 2. Tongue
 - 3. Salivary Glands
 - 4. Teeth
- B. Function of:
 - 1. Mechanical digestion (chewing)
 - 2. Lubrication: mixing w/ mucus and saliva

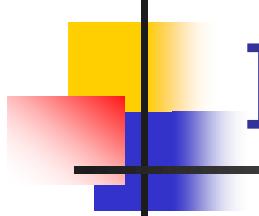
**lower jaw****upper jaw****Fig. 42.7, p. 733**



II. The Oral Cavity

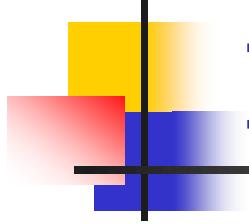
- B. Function of:
 - 1. Mechanical digestion (chewing)
 - 2. Lubrication: mixing w/ mucus and saliva
 - 3. Some digestion of carbohydrates and fats





III. The Pharynx

- A. Location: Back of the throat; connects the nasal cavity with the mouth.
- B. Function of: Has muscles that initiate swallowing. Also allows us to breathe while we chew.

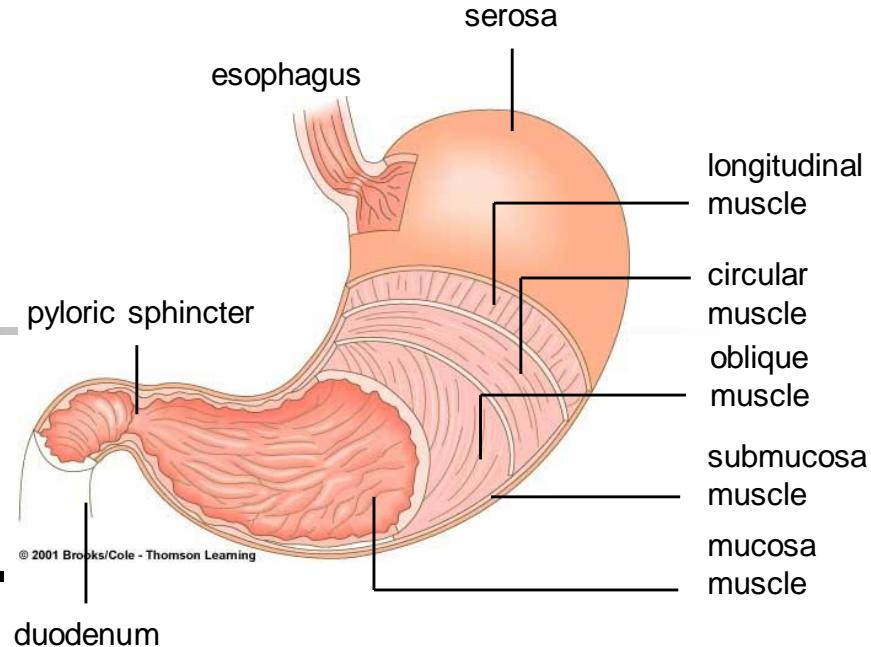


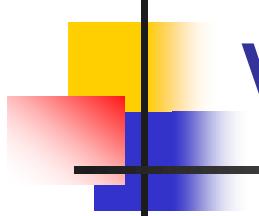
IV. The Esophagus

- A. Anatomy: It is a hollow, smooth muscle tube. It is about 1 foot long and is collapsed in its normal state.
- B. Swallowing: Works automatically through a process called peristalsis. You swallow 2400 times per day. Swallowed food is called a bolus.

V. The Stomach

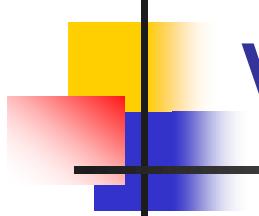
- A. Functions of:
 - 1. Storage of food.
 - 2. Mechanical breakdown of food.
 - 3. 1st digestion using acids and enzymes
 - 4. The stomach turns food into a soupy substance called chyme.





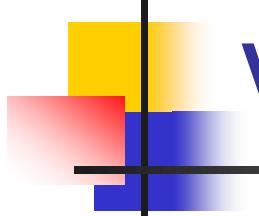
V. The Stomach

- B. Anatomy of:
 - 1. The stomach has 4 regions.
 - (a) Cardiac stomach: area of stomach connected to esophagus.
 - (b) Fundus: Upper curve of stomach.
 - (c) The Body: Main part of stomach.
 - (d) The Pylorus: area of stomach that connects to the small intestine. Has a muscle called the pyloric sphincter that is the “gate keeper”.



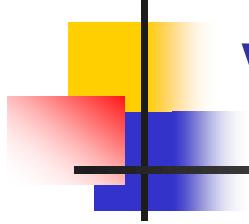
V. The Stomach

- B. Anatomy of:
 - 1. The stomach has 4 regions.
 - 2. Rugae: Folds in the stomach so the stomach can expand.
 - 3. Glands:
 - (a) Gastric glands: produce gastric juice (hydrochloric acid and pepsin) Pepsin breaks down protein.
 - (b) Pyloric glands: produce mucus and hormones.



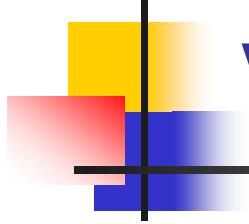
VI. The Small Intestine

- A. Function of:
 - 1. Area where almost all digestion occurs.
 - 2. Area where almost all absorption occurs.
- B. Anatomy of:
 - 1. Is 20' long.
 - 2. Has three subdivisions:
 - (a) duodenum: 1st 10". Receives digestive enzymes from liver and pancreas.



VI. The Small Intestine

- B. Anatomy of:
 - 2. Has three subdivisions:
 - (a) duodenum: 1st 10". Receives digestive enzymes from liver and pancreas.
 - (b) Jejunum: 8' long, most digestion and absorption here.
 - (c) ileum: 12' long. Has the ileocecal valve that controls the flow of material into the large intestine.



VI. The Small Intestine

- B. Anatomy of:
 - 2. Has three subdivisions:
 - 3. Intestinal Villi: The inner lining of the intestine has finger like projections that increase surface area for greater absorption of digested food.

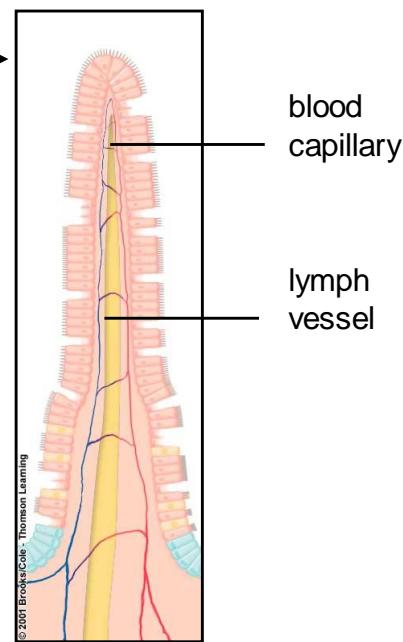
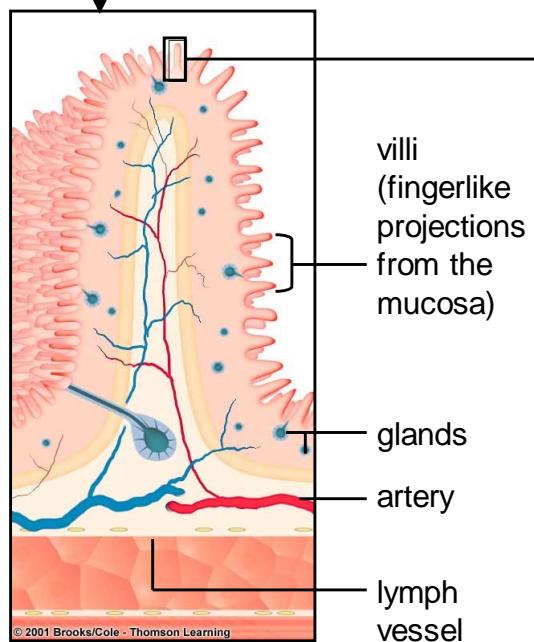
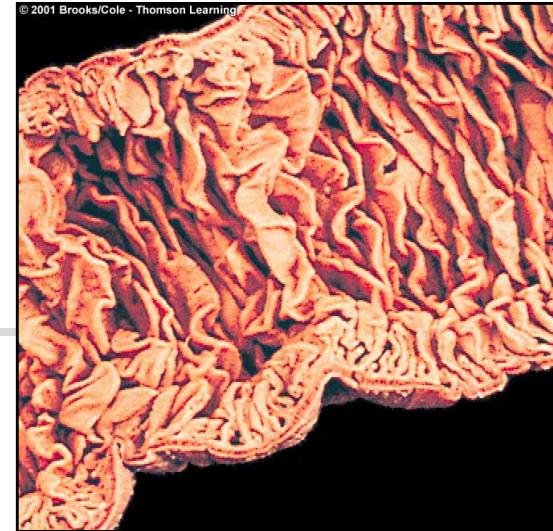
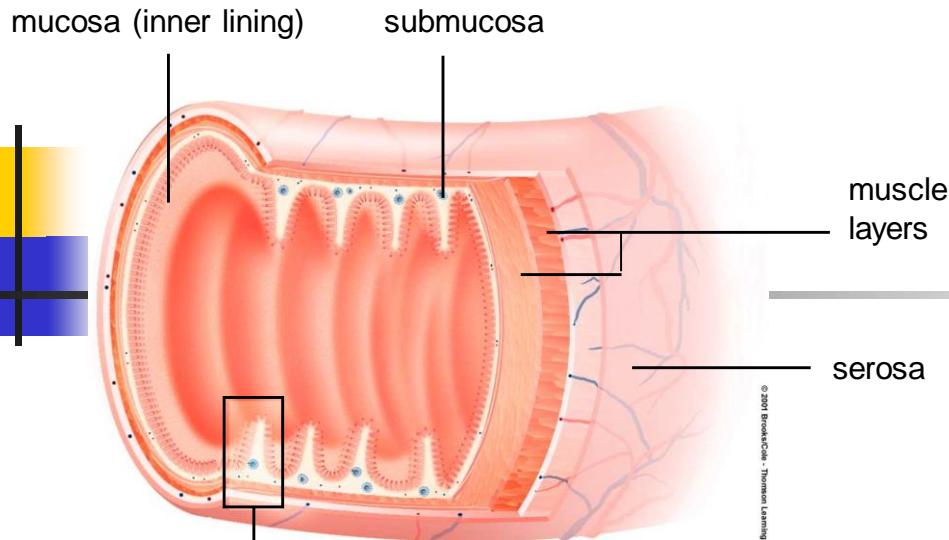
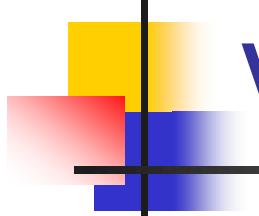
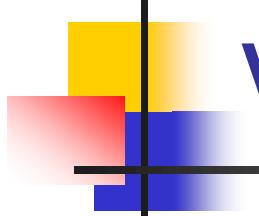


Fig. 42.10a, p. 736



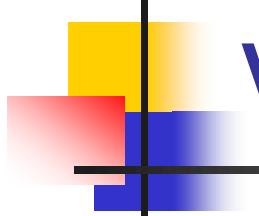
VII. The Large Intestine

- A. The function of:
 - 1. Absorption of water and compaction of the feces.
 - 2. The absorption of vitamins created by intestinal bacteria.
 - 3. The storing of fecal material prior to taking a #2.



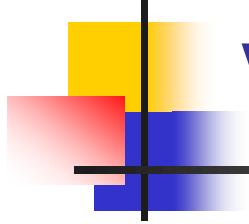
VII. The Large Intestine

- A. The function of:
- B. The anatomy of:
 - 1. Around 5' long
 - 2. Has three parts:
 - (a) cecum: the 1st portion
 - (b) colon: the largest portion
 - (c) rectum: the last 6" and end of the dig. tract.



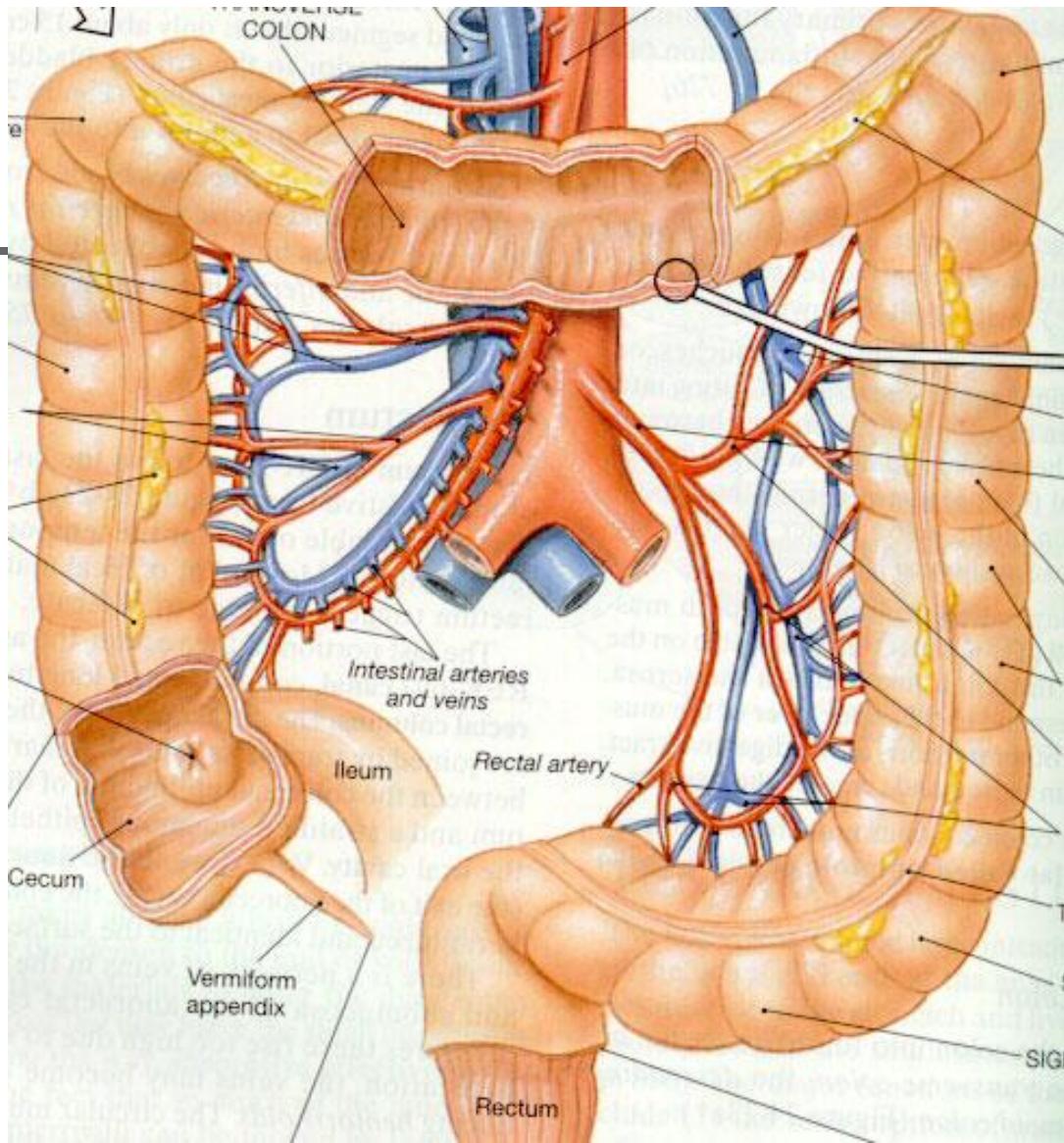
VII. The Large Intestine

- A. The function of:
- B. The anatomy of:
- C. The Cecum: contains the appendix, which is part of the lymphatic system.
- D. The Colon (has 4 regions)
 - 1. Ascending Colon
 - 2. Transverse Colon

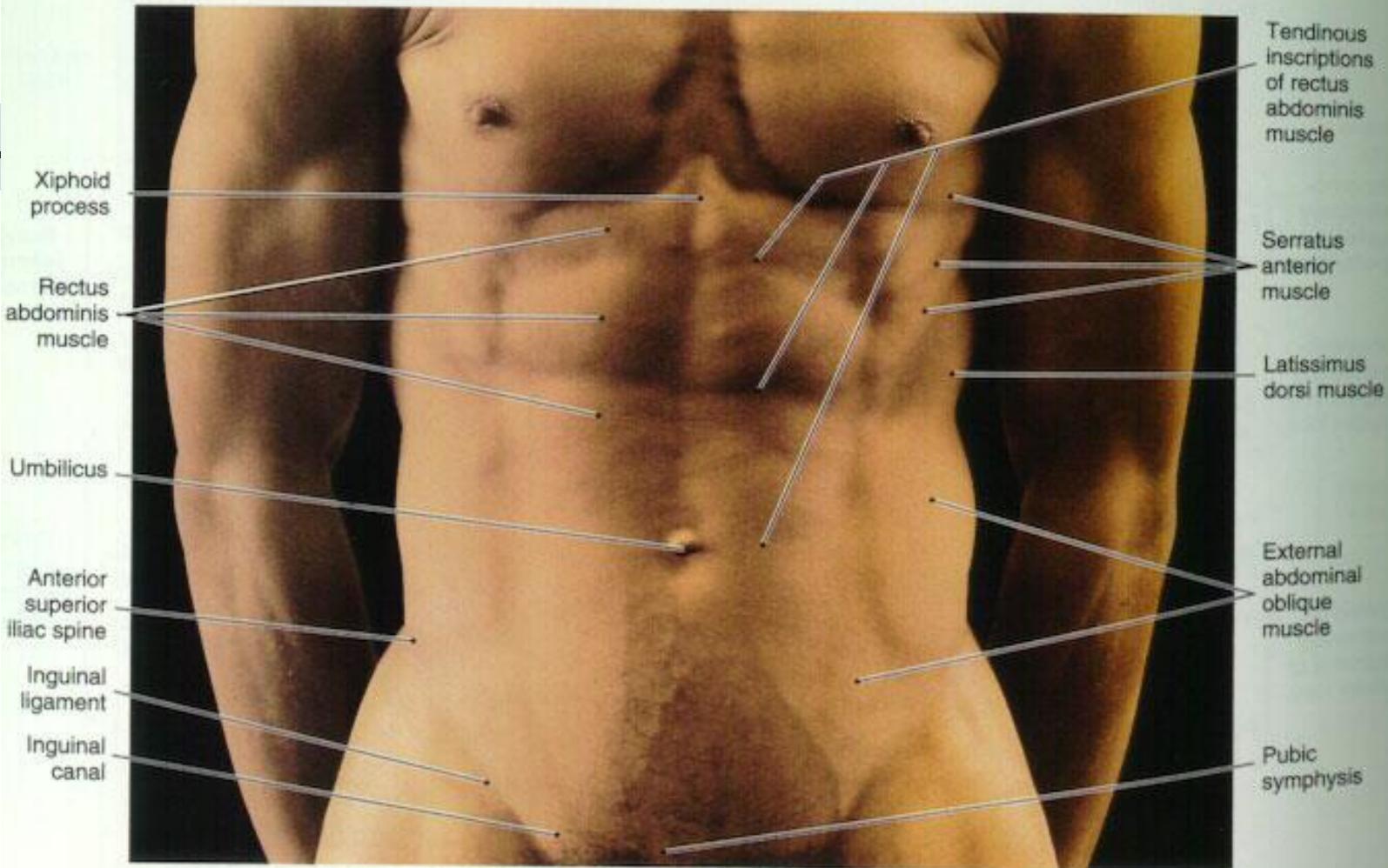


VII. The Large Intestine

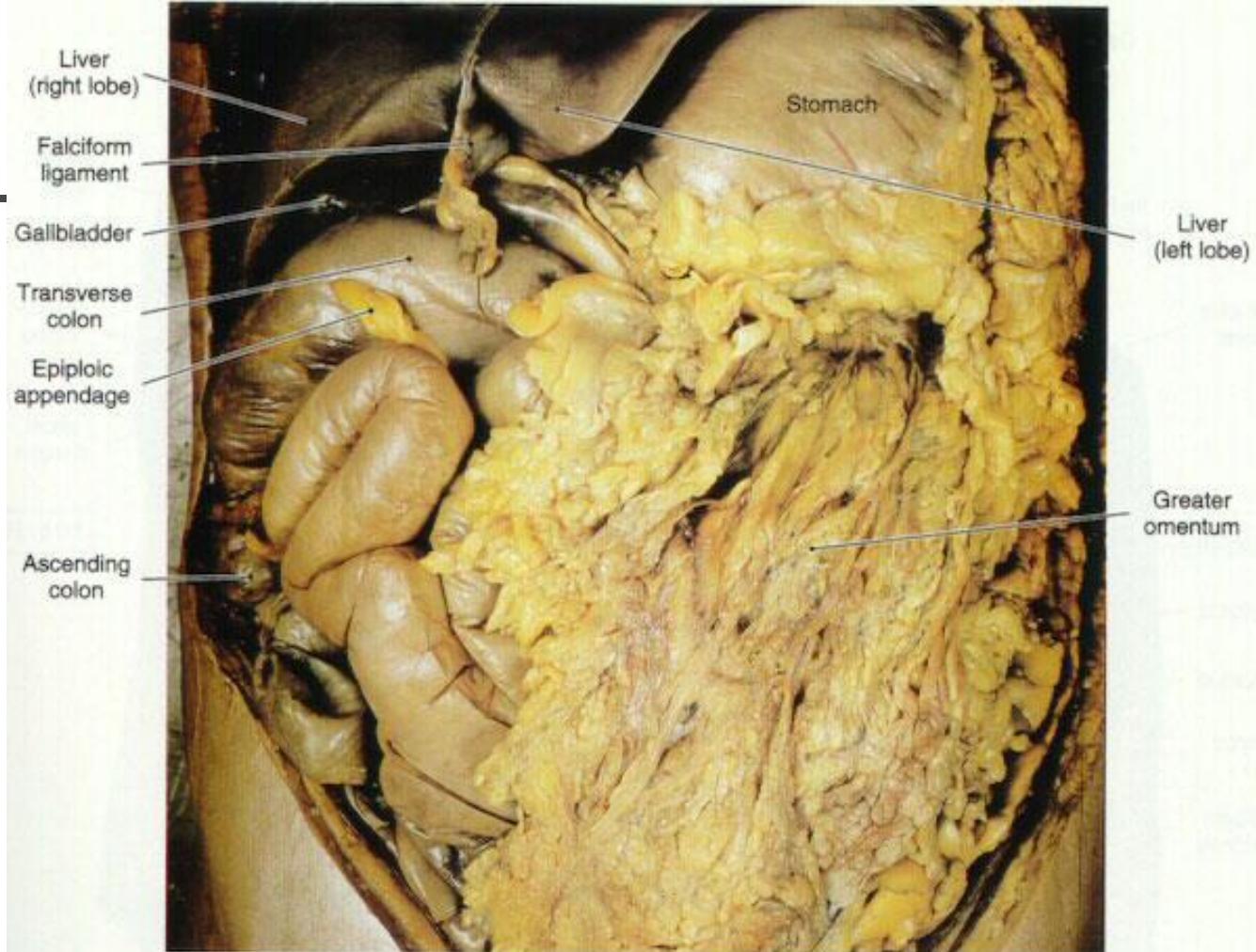
- D. The Colon (has 4 regions)
 - 1. Ascending Colon
 - 2. Transverse Colon
 - 3. Descending Colon
 - 4. Sigmoid Colon



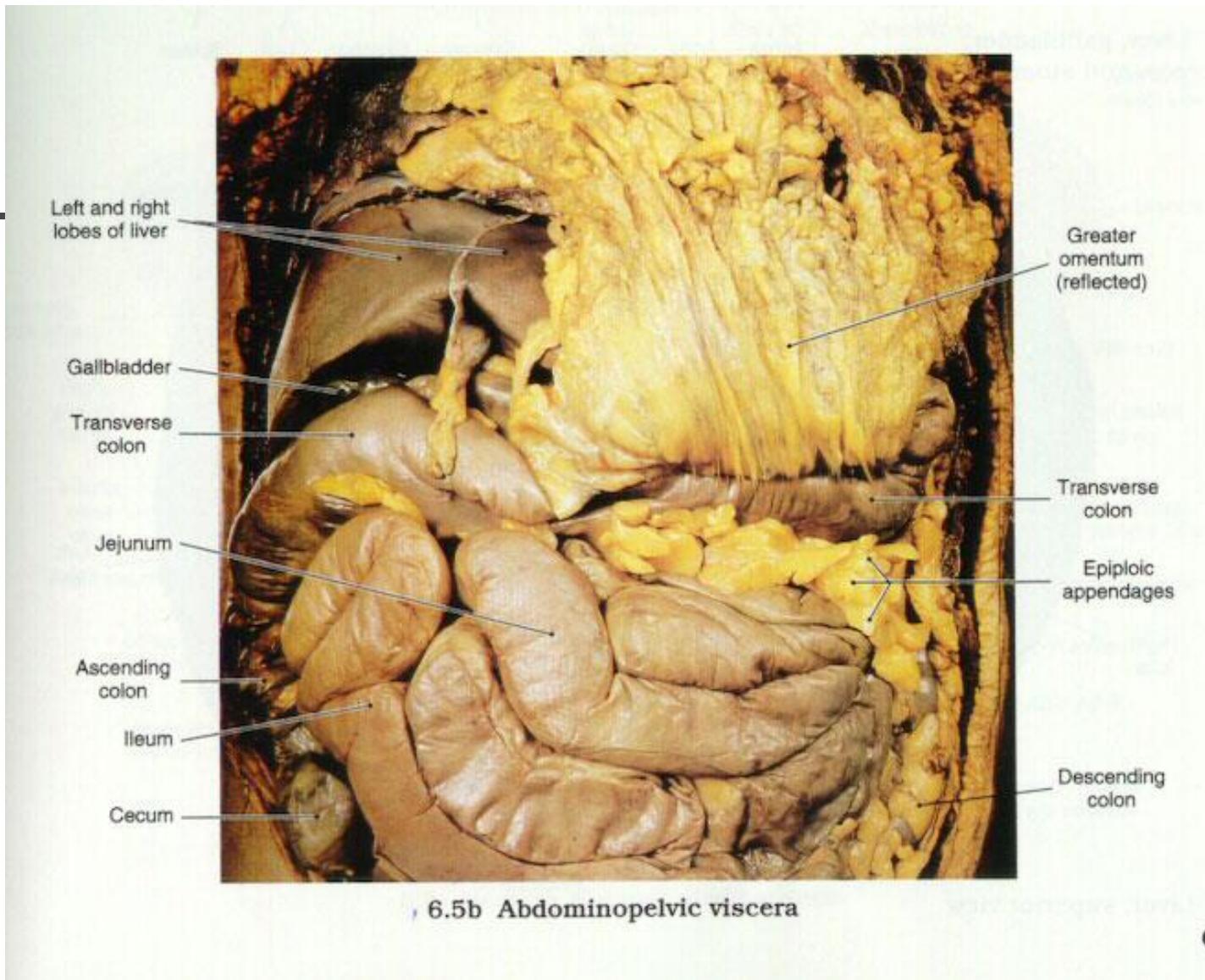
of the abdominal wall



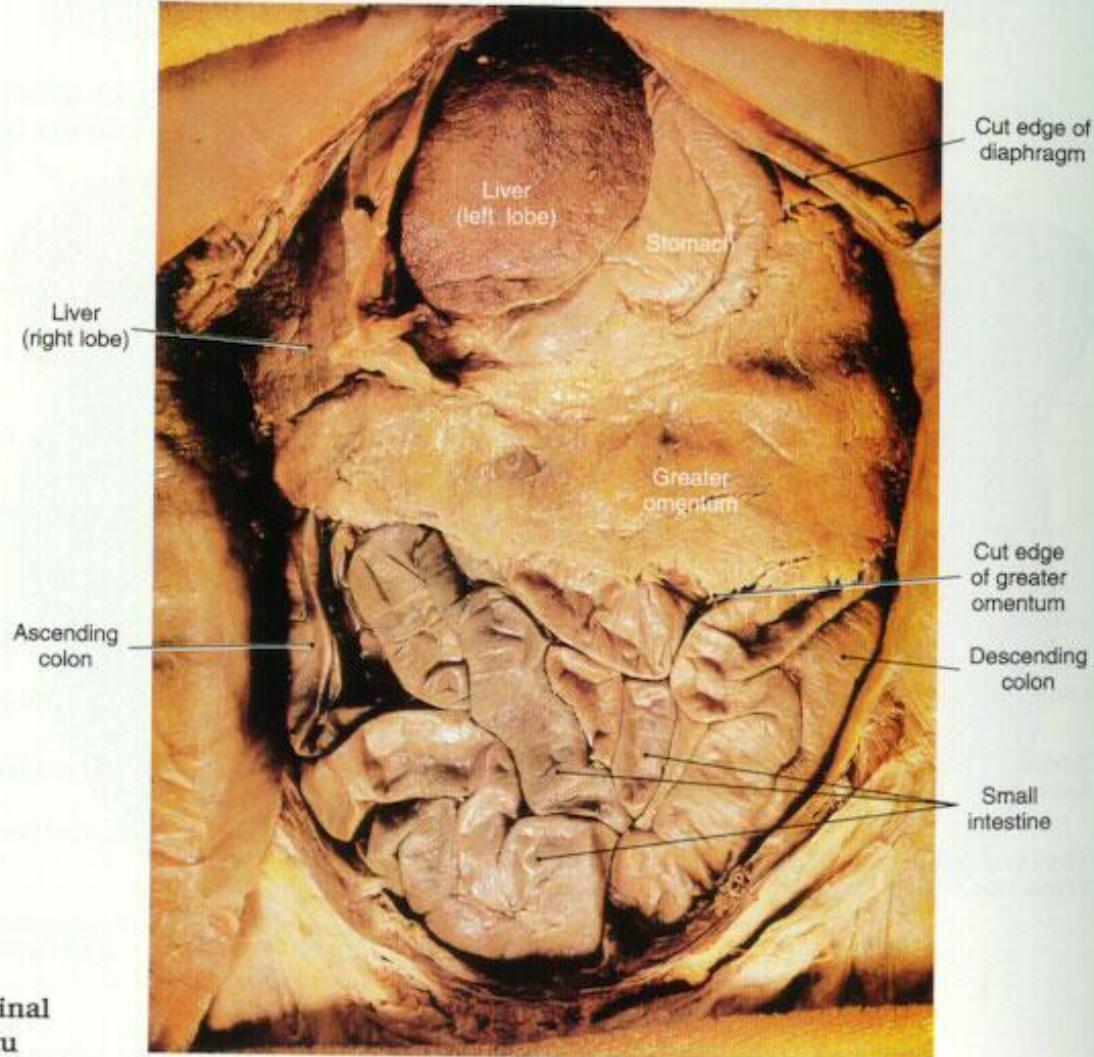
6.4b Abdominal wall, anterior view



• 6.5a Abdominopelvic cavity



6.5g Section through upper abdomen



1 Abdominal
cavity in situ

D

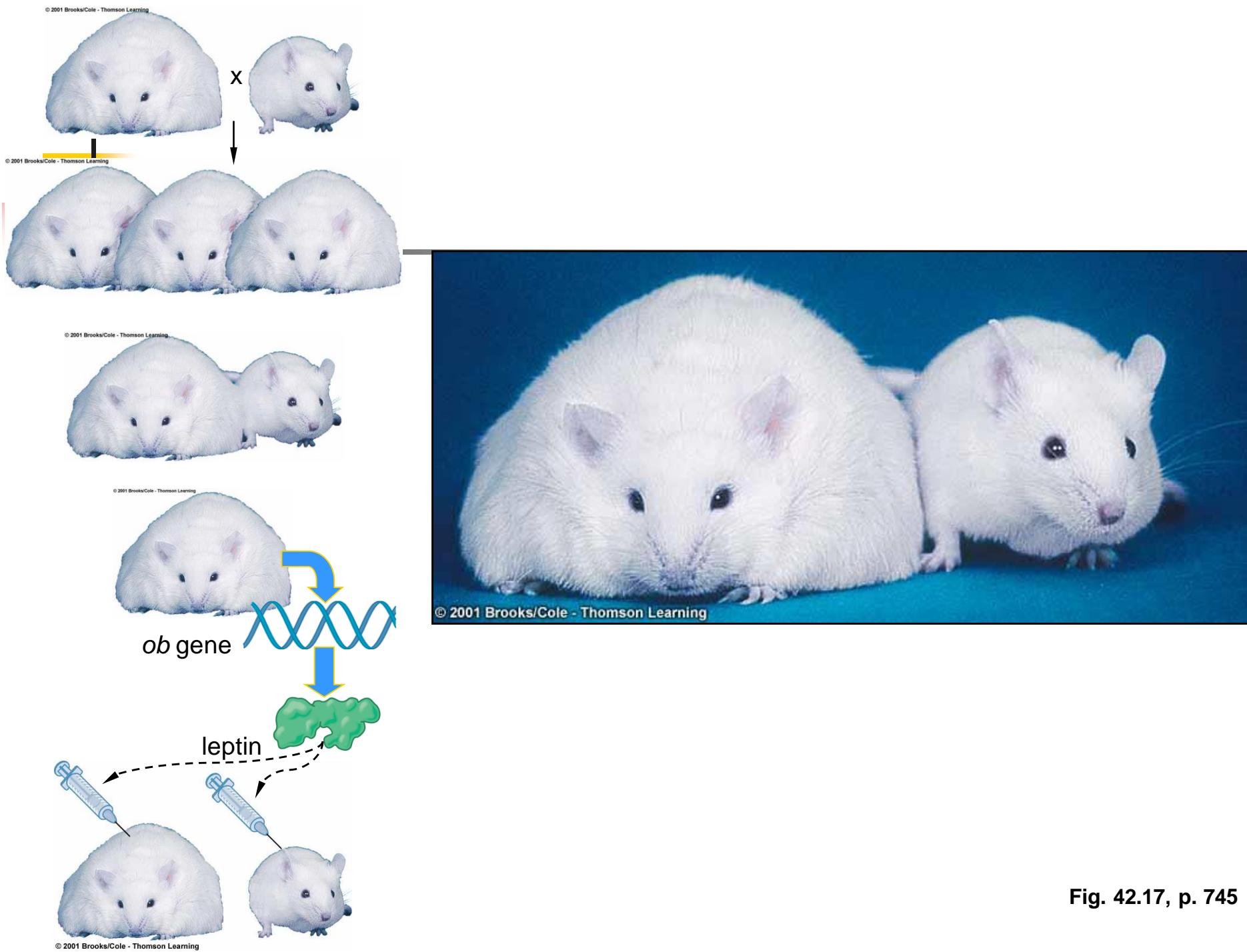
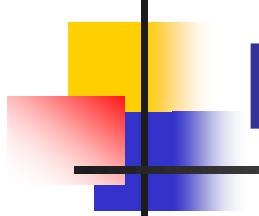


Fig. 42.17, p. 745



Homework Summaries

- Page 871: Mumps
- Page 872: Dental Problems
- Page 888: Vomiting
- Page 903: Diarrhea & Constipation