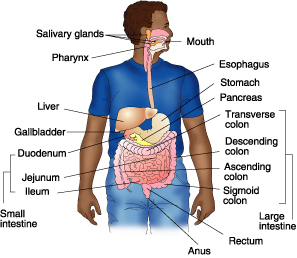
# Answers to Questions in the Workbook, Chapter 36, The Digestive System

Activity A LABEL THE FIGURE  
  
Activity B FILL IN THE BLANKS

* 1. The muscle layer contains smooth muscle that is under involuntary control and helps move food through the system.
  2. The submucosa consists of connective tissue along with blood vessels and nerves.
  3. The mucosa, a mucous membrane, lines the digestive tract.
  4. The serosa is a tough outer layer of connective tissue.

Activity C SHORT ANSWER

The mucus secreted by the mucous membrane that lines the digestive tract helps to trap disease-causing microbes. This is important because the digestive tract is open to the outside world at both ends (i.e., the mouth and the anus). In addition to trapping microbes, mucus helps to protect the delicate tissues of the digestive tract from stomach acid, a very harsh fluid produced by the stomach to help digest food. (BONUS: respiratory system, urinary system.)

Activity D MATCHING

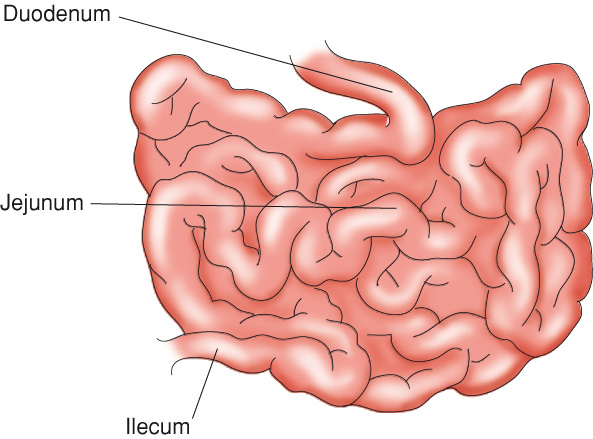
1. c

2. e

3. f

4. b

* 1. a
  2. d

Activity E LABEL THE FIGURE  


Activity F FILL IN THE BLANKS

1. The esophagus passes through the chest cavity, behind the heart, and enters the abdominal cavity at the hiatus, an opening in the diaphragm.

2. The fundus is the upper region of the stomach.

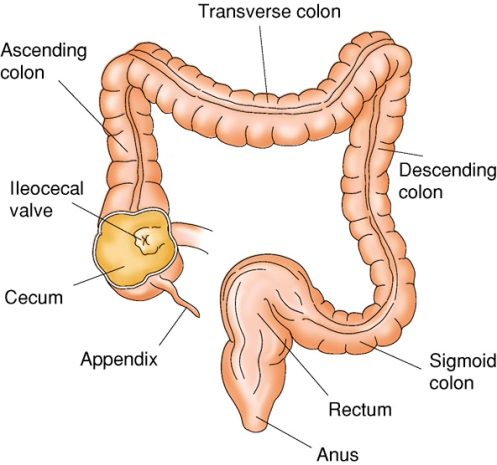
3. Food enters the stomach through the esophageal sphincter, which keeps the food from going back up the esophagus.

4. The pylorus is the bottom region of the stomach. Food leaves the stomach through the pyloric sphincter, which prevents the food from returning to the stomach once it enters the small intestine.

5. The large intestine, also called the colon, is approximately 4½ feet long.

6. Saliva is a substance that helps with chewing and swallowing by moistening the food.

* 1. The liver is a large organ located just underneath the diaphragm that produces and secretes bile.
  2. The small intestine is about 20 feet long.
  3. The pancreas is located behind the stomach, in the curve of the duodenum.
  4. The gallbladder is a small pouch that is attached to the liver where bile is stored.

Activity G LABEL THE FIGURE  


Activity H IDENTIFY THE ORGANS AND REARRANGE

1. Jejunum: Absorption of nutrients begins.

2. Large intestine: Bacteria act on the chyme to produce vitamin K and some B vitamins. Water is also absorbed into the bloodstream.

3. Duodenum: The chyme mixes with bile (secreted by the liver) and digestive enzymes secreted by the pancreas.

4. Salivary glands: Chemical substances in our saliva start to work on the smaller pieces of food, breaking them down through chemical digestion.

5. Stomach: Through peristaltic action, food is mixed with hydrochloric acid, creating a liquid substance called chyme.

6. Rectum: As the feces (waste products of digestion) collect over a period of time, the urge to defecate (have a bowel movement) occurs.

7. Teeth: Mechanical digestion helps in the physical breakdown of food by mastication.

*Correct Sequence*:

7

4

5

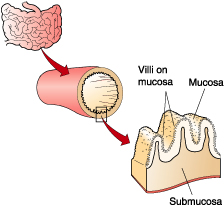
3

1

2

6

Activity I LABEL THE FIGURE

AND DESCRIBE  
   
  
Once the chyme reaches the jejunum, the nutrients pass through the mucosa and into the blood vessels in the next layer, the submucosa. The mucosa of the small intestine has millions of tiny finger-like structures called villi. The villi increase the small intestine’s ability to absorb nutrients by increasing the surface area of the mucosa.

Activity J TRUE OR FALSE

1. F. The physical breaking up of food by mastication is called MECHANICAL digestion.

2. T

3. F. The peristaltic action of the stomach helps to mix the food with the acid and enzymes, forming CHYME.

4. F. The contents of the digestive tract mix with bile in the DUODENUM (or SMALL INTESTINE).

5. T

Activity K SHORT ANSWER

1. As the chyme passes slowly through the large intestine, additional water is absorbed into the bloodstream. By the time the chyme reaches the end of the long intestine, all nutrients and most of the water have been removed, and the chyme has taken on the soft, moist, semisolid consistency of normal feces.

2. The feces (waste products of digestion) collect in the rectum, the last segment of the large intestine. The walls of the rectum gradually expand as the feces build up. At a certain point, the brain senses that the rectum is “full” and the urge to defecate (have a bowel movement) occurs.

Activity L MATCHING

1. b

2. c

3. a

Activity M SHORT ANSWER

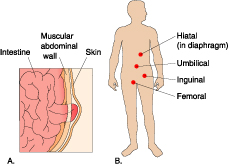
1. Mr. Obamsawin is at a risk for choking because he is not able to chew his food properly. To help minimize this risk, it is important to create a relaxed, social environment for eating so that Mr. Obamsawin does not feel rushed. It is also important to help him cut his food into small, easy-to-chew pieces. A soft diet may be ordered by the dietitian.

2. In an older person, the movement of food through the digestive tract may be slower. The chyme spends more time in the large intestine, which allows more water to be reabsorbed into the bloodstream. As a result, by the time the chyme reaches the end of the large intestine, almost all of the water has been removed and the resulting feces are hard, dry, and difficult to pass. This can put the older person at risk for constipation. When caring for an older person like Ms. Liu, it is important to offer fluids frequently (if there are no restrictions), encourage a fiber-rich diet containing lots of fruits and vegetables, and assist with light exercise. All of these measures can help to prevent constipation in older people.

Activity N SHORT ANSWER

1. Ulcers are sores caused by wearing away of the protective mucosa that lines the digestive tract. Most ulcers are caused by infection with the *Helicobacter pylori* bacterium. Factors such as smoking, frequent use of over-the-counter pain drugs, and emotional stresscan increase a person’s chances of developing an ulcer. A person with an ulcer may feel uncomfortably full or nauseous after eating. Stomach pain is common, especially within 3 hours of eating (or when the person does not eat). Most ulcers are chronic. The person will have periods of feeling well, interrupted by flare-ups of symptoms.

2. Gallbladder disorders can cause the feces to be pale and “clay-colored” due to a low bile content. A person with a gallbladder disorder has episodes of severe pain. The pain may stay in the upper abdominal region, or it may radiate to the back and shoulder on the person’s right side. The person may also have indigestion, especially after eating foods that are high in fat. In some cases, surgical removal of the gallbladder is needed.

Activity O IDENTIFY AND LABEL THE FIGURE  
The digestive disorder shown in Figure A is a hernia.  
  


Activity P MATCHING

1. d

2. f

3. h

4. a

5. g

6. b

7. e

8. c

Activity Q SHORT ANSWER

Digestive complaints such as heartburn, indigestion, nausea, vomiting, stomachache, gas, diarrhea, and constipation are common. However, sometimes they may signal a serious disorder. Because Mrs. Lewis’ complaint of heartburn today is different from her usual complaint of heartburn, it is important to report it to the nurse immediately.

Activity R FILL IN THE BLANKS

1. An example of a simple test for a digestive complaint is laboratory analysis of a stool sample.

2. Endoscopy involves using a special instrument to look inside the digestive tract and obtain tissue or fluids for analysis.

3. The endoscope is passed through a person’s mouth to view the upper digestive tract or the anus to view the lower digestive tract.

4. Imaging studies, such as x-rays, computed tomography (CT) scans, and magnetic resonance imaging (MRI) scans allow the doctor to view the organs of the digestive system without actually entering the body.

Activity S JUMBLED WORDS

1. ESOPHAGUS

2. RUGAE

3. CHEWING

4. HERNIA

5. DIVERTICULITIS