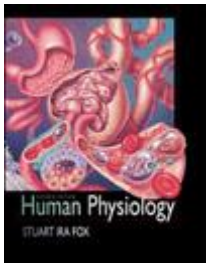
Human Physiology, 7/e
Stuart I Fox, Pierce College



The Digestive System

Results Reporter

Out of 44 questions, you answered 22 correctly, for a final grade of 50%.

22 correct (50%)
22 incorrect (50%)
0 unanswered (0%)

Please answer all questions

Your Results:

The correct answer for each question is indicated by a ✓.

1 CORRECT

Digestive enzymes that have become activated normally have no contact with the cytoplasm of the body's cells, even though they are synthesized there. (p. 563)

✓ **A)** True
B) False

Feedback: Correct: The digestive enzymes are secreted into the lumen of the gastrointestinal tract which keeps the enzymes isolated from the cells of the body. (p. 563)

2 CORRECT

Digestive reactions are limited to the lumen (cavity) of the gastrointestinal (GI) tract and do not occur within the tissues. (p. 563)

✓ **A)** True
B) False

Feedback: Correct: The digestive enzymes are secreted into the lumen and the reactions occur in the fluid in the lumen. (p. 563)

3 INCORRECT

The myenteric nerve plexus of the digestive tract wall is found in the submucosa layer, or tunic. (p. 565)

A) True
✓ **B)** False

Feedback: Incorrect: The submucosa contains Meissner's plexus. (p. 565)

4 CORRECT

Parasympathetic stimulation of the alimentary canal increases its peristaltic and secretory activity. (p. 565)

✓ **A)** True
B) False

Feedback: Correct: Parasympathetic stimulation increases the secretion and contraction of the digestive tract. (p. 565)

5 CORRECT

The esophagus contains both smooth and skeletal muscle in its muscularis externa layer. (p. 566)

✓ **A)** True
B) False

Feedback: Correct: Unlike other parts of the digestive tract the esophagus contains both skeletal and smooth muscle. (p. 566)

6 **INCORRECT** Absorption of vitamin B_{12} by the small intestine requires the presence of a polypeptide, called the intrinsic factor which is secreted by cells of the duodenum. (p. 568)

- **A)** True
- ✓ **B)** False

Feedback: Intrinsic factor is secreted by the stomach and increases the absorption of vitamin B_{12}. (p. 568)

7 **INCORRECT** Dietary protein is broken down by stomach acid, which splits the peptide bonds between its amino acids. (p. 569)

- **A)** True
- ✓ **B)** False

Feedback: Incorrect: Hydrochloric acid denatures proteins making them easier to be degraded. (p. 569)

8 **CORRECT** The adult stomach does not digest fat or carbohydrate. (p. 570)

- ✓ **A)** True
- **B)** False

Feedback: Correct: In children there is some fat and carbohydrate digestion, but not in the adult stomach. (p. 570)

9 **INCORRECT** Protein digestion is completed in the stomach by the action of the enzyme, pepsin. (p. 570)

- **A)** True
- ✓ **B)** False

Feedback: Incorrect: The actions of pepsin start the digestion of protein. (p. 570)

10 **CORRECT** A person can still adequately digest and absorb food after complete removal of the stomach. (p. 570)

- ✓ **A)** True
- **B)** False

Feedback: Correct: The stomach plays a minor role in digestion and virtually none in absorption and as long as there is intrinsic factor production, the stomach is not needed for digestion and absorption of macromolecules. (p. 570)

11 **INCORRECT** The stomach is so well protected against its own acid and enzymes that it has a very low rate of cell death and slow cell replacement. (p. 570)

- **A)** True
- ✓ **B)** False

Feedback: The stomach is relatively well protected against acids and enzymes, but the rate of cell turnover is still high. (p. 570)

12 **CORRECT** Peptic ulcers of the duodenum are caused mainly by excessive HCl secretion by the stomach. (p. 571)

- ✓ **A)** True
- **B)** False

Feedback: Correct: Peptic ulcers are primarily the result of excessive HCl secretion eroding the epithelium of the stomach or duodenum. (p. 571)

13 **INCORRECT** The small intestine tends to contract after death, so it is considerably shorter in a cadaver than in a living person. (p. 571)

- **A)** True
- ✓ **B)** False

Feedback: Incorrect: The muscle relax after death causing the small intestine to be approximately twice the length it is in a living person. (p. 571)

14 **CORRECT**

The inability to digest milk is due to inactivity of an intestinal brush border enzyme, called lactase. (p. 573)

✓ ◉ **A)** True

○ **B)** False

Feedback: Correct: A lack of lactase produces lactose intolerance since the body cannot digest the lactase in milk. (p. 573)

15 **INCORRECT**

People with lactose intolerance can tolerate yogurt better than milk because yogurt does not contain lactose. (p. 573)

◉ **A)** True

✓ ○ **B)** False

Feedback: Incorrect: The lactose is still present in yogurt but the bacterial in yogurt produce lactase an aid in digestion of the lactose. (p. 573)

16 **INCORRECT**

A nexus is a cell junction that conducts action potentials from one smooth muscle cell to another in the muscularis layer of the gastrointestinal tract. (p. 574)

◉ **A)** True

✓ ○ **B)** False

Feedback: Incorrect: Interstitial cells of Cajal are linked together by gap junctions that regulate contraction of the smooth muscle. (p. 574)

17 **CORRECT**

Intestinal smooth muscle layers is capable of spontaneous depolarizations, called pacesetter potentials, or slow waves, that are conducted across electrical synapses. (p. 574)

✓ ◉ **A)** True

○ **B)** False

Feedback: Correct: Some regions of the smooth muscle act as pacemakers to produce slow wave contractions in the intestine. (p. 574)

18 **INCORRECT**

Goblet cells are limited to the stomach and the small intestine. (p. 575)

◉ **A)** True

✓ ○ **B)** False

Feedback: Incorrect: Goblet cells are found throughout the gastrointestinal tract. (p. 575)

19 **CORRECT**

Villi are limited to the small intestine, they are not found in the large intestine. (p. 575)

✓ ◉ **A)** True

○ **B)** False

Feedback: Correct: The surface area of the large intestine is increased by the haustra. (p. 575)

20 **CORRECT**

Aldosterone, the mineralocorticoid hormone from the adrenal cortex, stimulates salt and water retention not only by the kidney but also by the ileum portion of the small intestine. (p. 577)

✓ ◉ **A)** True

○ **B)** False

Feedback: Correct: The role of aldosterone is not limited to the kidney, it also stimulates salt and water retention by the ileum. (p. 577)

21 **INCORRECT**

Substances that pass between the hepatocytes and the blood of the hepatic sinusoids must pass through the cytoplasm of the Kupffer cells. (p. 578)

◉ **A)** True

✓ ○ **B)** False

Feedback: Incorrect: The Kuppfer cells are macrophages that are fixed in the hepatic sinusoids and serve to phagocytize particles and pathogens. (p. 578)

22 **CORRECT**

Any digestive breakdown product that is absorbed by the blood vessels of the small intestine must pass through the liver before it can proceed to any other organ of the body. (p. 579)

✓ **A)** True

B) False

Feedback: Correct: The hepatic portal system receives all the blood from the blood vessels perfusing the small intestine so the liver is the first tissue to see the absorbed material. (p. 579)

23 **INCORRECT**

The liver receives all its blood from the hepatic portal vein. (p. 579)

A) True

✓ **B)** False

Feedback: Incorrect: The hepatic portal vein receives the blood from the digestive tract capillaries but the hepatic artery perfuses the liver. (p. 579)

24 **INCORRECT**

Bile is a fluid produced by the gallbladder and secreted into the duodenum. (p. 580)

A) True

✓ **B)** False

Feedback: Bile is produced by the liver and stored in the gallbladder prior to secretion into the duodenum. (p. 580)

25 **INCORRECT**

Any wastes excreted by the liver into the bile are eventually passed with the feces. (p. 580)

A) True

✓ **B)** False

Feedback: Incorrect: Some of the substances are reabsorbed by the enterohepatic circulation and returned to the liver. (p. 580)

26 **INCORRECT**

The liver is the largest gland in the body and produces a greater variety of digestive enzymes than any other component of the digestive system. (p. 580)

A) True

✓ **B)** False

Feedback: Incorrect: The liver is the largest gland, but this gland produces no digestive enzymes. (p. 581)

27 **CORRECT**

When bilirubin is bound to plasma albumin, it cannot be excreted in the urine or feces. (p. 581)

✓ **A)** True

B) False

Feedback: Correct: If the bilirubin is bound to albumin it cannot leave the blood. (p. 581)

28 **CORRECT**

The liver makes plasma globulins, but not immunoglobulins. (p. 583)

✓ **A)** True

B) False

Feedback: Correct: Immunoglobulins are synthesized by B cells, but all other plasma globulins are synthesized by the liver. (p. 583)

29 **CORRECT**

Gallstones are small, hard, mineral deposits made mainly from cholesterol molecules. (p. 583)

✓ **A)** True

B) False

Feedback: Correct: Gallstones form when there is excess cholesterol in the blood. (p. 583)

30 **INCORRECT** The endocrine components of the pancreas are called acini. (p. 585)

A) True

✓ **B)** False

Feedback: Incorrect: The exocrine component of the pancreas is the acini. (p.585)

31 **INCORRECT** The pancreas produces the digestive enzymes which complete the final breakdown of carbohydrates and fats. (p. 585)

A) True

✓ **B)** False

Feedback: The digestive enzymes of the pancreas start the process of digestion of most molecules and continue the digestion of other macromolecules started in previous regions of the gastrointestinal tract. (p. 585)

32 **CORRECT** Many pancreatic enzymes depend on the enzyme trypsin to activate them upon their arrival in the duodenum. (p. 585)

✓ **A)** True

B) False

Feedback: Correct: Trypsin is activated by enterokinase and then trypsin activates chymotrypsin, elastase, carboxypeptidase, and phospholipase. (p. 585)

33 **INCORRECT** Gram for gram, fat has a higher energy content than carbohydrate and accounts for most of the calories in the average American diet. (p. 592)

A) True

✓ **B)** False

Feedback: Incorrect: While fat has a higher energy density, it accounts for fewer total calories in the average American diet than carbohydrates. (p. 592)

34 **CORRECT** Starch digestion begins in the mouth. (p. 592)

✓ **A)** True

B) False

Feedback: Correct: Salivary amylase begins the digestion of starch in the mouth. (p. 592)

35 **INCORRECT** The final stage of starch digestion is carried out by pancreatic amylase. (p. 592)

A) True

✓ **B)** False

Feedback: Incorrect: The disaccharidases on the brush border complete the digestion of starch. (p.592)

36 **CORRECT** Protein digestion does not begin until food is moved into the stomach. (p. 592)

✓ **A)** True

B) False

Feedback: Correct: The salivary glands do not secrete proteases and digestion begins in the stomach through the actions of HCl and pepsin. (p. 592)

37 **CORRECT** Exopeptidases remove amino acids from the two ends of a polypeptide chain, while endopeptidases split peptide chains apart by hydrolyzing amino acids at various points within the chain. (p. 593)

✓ **A)** True

B) False

Feedback: Correct: Amino acids are cleaved from the ends of peptide chains by exopeptidases and endopeptidases cleave bonds within the protein chain. (p. 593)

38 **INCORRECT** Endopeptidases are components of the pancreatic juice, while exopeptidases are brush border enzymes. (p. 593)

◉ **A)** True

✓ ○ **B)** False

Feedback: Both types of peptidases are found in pancreatic juice. (p. 593)

39 **INCORRECT** Emulsification is the first step in the hydrolysis (digestion) of dietary lipids. (p. 593)

◉ **A)** True

✓ ○ **B)** False

Feedback: Incorrect: Emulsification allow the fat to digested more rapidly but is not a step in lipolysis. (p. 593)

40 **CORRECT** Triglycerides do not have to be broken down completely to glycerol and three free fatty acids before the epithelial cells of the small intestine can absorb them. (p. 593)

✓ ◉ **A)** True

○ **B)** False

Feedback: Correct: Removal of two fatty acids to generate monoglycerides is sufficient for absorption. (p. 593)

41 **CORRECT** Triglycerides are broken apart by hydrolysis in the lumen of the small intestine, but are then reassembled within the cytoplasm of the intestinal epithelial cells. (p. 594)

✓ ◉ **A)** True

○ **B)** False

Feedback: Correct: The epithelial cells resynthesize triglycerides that are then coated with proteins to form chylomicrons prior to transport into the lacteals. (p. 594)

42 **INCORRECT** Lipids must be incorporated into chylomicrons in the lumen of the small intestine before they can be absorbed by the intestinal epithelium. (p. 594)

◉ **A)** True

✓ ○ **B)** False

Feedback: Incorrect: The formation of chylomicrons occurs in the epithelial cells prior to secretion into the central lacteal. (p. 594)

43 **CORRECT** It is desirable for as much of the circulating blood cholesterol as possible to be incorporated into the healthier lipid particles called high-density lipoproteins (HDL). (p. 595)

✓ ◉ **A)** True

○ **B)** False

Feedback: Correct: HDL cholesterol does not contribute to atherosclerosis. (p. 595)

44 **INCORRECT** The low-density lipoproteins (LDLs) originate in the liver and serve the body cells with endogenously produced triglycerides. (p. 595)

◉ **A)** True

✓ ○ **B)** False

Feedback: Incorrect: LDLs originate in the blood after cells have removed triglycerides. (p. 595)

Routing Information

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