

Study Guide For The Digestive System
Chapter 24

- A. Describe the digestive functions.
- B. Describe the histology of the digestive tract.
 - 1. Contrast the major layers of the digestive tract.
 - 2. What function do the enteroendocrine cells serve?
 - 3. Describe the muscular layers associated with the muscularis externa.
- C. Explain how material move through the digestive system.
 - 1. Contrast peristalsis and segmentation.
 - 2. Describe the mechanisms that regulate digestive system activities.
 - a. neural
 - b. hormonal
 - c. local mechanisms (prostaglandins and histamines)
- D. Describe the components of the peritoneal cavity.
 - 1. Contrast visceral and parietal peritoneum.
 - 2. Describe the structure and function of the mesenteries.
 - 3. Where are the greater and lesser omentum membranes located? What function do they serve?
 - 4. Explain peritonitis.
- E. Describe the digestive functions associated with the oral cavity.
 - 1. Describe the functional roles that the tongue and teeth play in digestion.
 - 2. Define mastication and bolus.
 - 3. Describe the three pairs of salivary gland. Describe their secretions. What food/s are digested? Describe saliva. What products are absorbed in the oral cavity?
 - 4. What controls salivary secretion?
 - a. medulla and autonomic nervous system?
 - b. irritating stimuli?
 - c. tactile stimulation?
- F. Describe the digestive function associated with esophagus.
 - 1. Explain swallowing (deglutition).
 - 2. Describe the esophageal hiatus.
- G. Describe the structure and function of the stomach.
 - 1. Locate the following structures: cardia, fundus, pylorus, pyloric sphincter, rugae, and greater and lesser curvatures.
 - 2. What benefit is the oblique muscle layer in the stomach's muscularis externa?
 - 3. Describe the gastric pits and glands.
 - a. parietal cells and their secretions
 - b. functions of gastric juice
 - c. chief cells and their secretions
 - d. enzymes secreted
 - 4. Describe the affects of hormones secreted by pyloric glands.
 - a. G cells and gastrin
 - b. D cells and somatostatin
 - 5. Explain gastritis and peptic ulcers. What are possible causes?
 - 6. Describe the regulatory mechanisms of gastric secretions.
 - a. cephalic phase
 - b. gastric phase (gastrin)
 - c. intestinal phase and the enterogastric reflex
 - d. give the stimulus for and affects of secretin, cholecystokinin, and gastric inhibitory peptide
 - 7. What is chyme?
 - 8. What foods are digested and absorbed by the stomach?
 - 9. Describe the mechanisms associated with vomiting.
- H. Describe the structure and function of the small intestine and associated glandular organs

1. Name the three subdivisions of the small intestines.
2. Describe the histology of the small intestine
 - a. plicae circulares
 - b. intestinal villi
 - c. lacteals and chylomicrons
 - d. brunner's gland and duodenum
 - e. peyer's patches in the ileum
3. Describe the movement mechanisms associated with the intestine.
4. Describe the structure and function of the pancreas.
 - a. pancreatic acini - function
 - b. endocrine function/s - pancreatic islets/insulin and glucagon
 - c. exocrine function/s - pancreatic juice
 - d. secretin - stimulates the release of fluids that buffer
 - e. cholecystokinin - release pancreatic enzymes - digest all basic food types
5. Describe the structure and functions of the liver.
 - a. lobes
 - b. origin of round ligament
 - c. bile, bile duct, gall bladder, and functions of bile
 - d. Kupffer cells (macrophage cells)
 - e. metabolic and hematological functions (superficial)
 - f. cholecystitis
6. Learn the major gastrointestinal hormones. What stimulates their release? What is their origin, their target and their effects.
- I. Describe the structure and function of the large intestine.
 1. List the major functions of the large intestine.
 2. Describe the ileocecal valve, the gastric cecum, and the vermiform appendix (appendicitis).
 3. Describe the colon.
 - a. haustrae
 - b. taenia coli
 - c. epiploic appendages
 4. List the four regions of the colon.
 5. Explain diverticulitis.
 6. Explain what material are absorbed by the intestinal wall.
 - a. vitamins
 - b. water
 - c. urobilinogins and stercobilinogin
 - d. bile salts
 - e. toxins
 7. Define: defecation, diarrhea, and constipation.
- J. Describe in a general way where the basic food types are absorbed.
- K. Explain vitamin absorption

Urinary System

Chapter 26

- A. Describe the organs associated with the human urinary system. Trace the flow of urine from the kidneys to the outside of the body.
- B. Study the different structure of the kidneys.
1. Renal capsule, cortex, and medulla.
 2. Cortical nephron (85%) and juxtamedullary nephron.
 3. Collecting tubule, renal pelvis, major and minor calyces, peritubular capillaries, vasa recta, renal pyramids, renal hilus.
 4. Supportive tissues that surround the kidney.
- C. Describe the nephron's structure in detail.
1. What function do podocyte cells and filtration slits serve?
 2. Compare cortical and juxtamedullary nephrons.
 3. Describe the capillary beds associated with nephrons.
 - a. glomerulus
 - b. peritubular
 4. Compare efferent and afferent arterioles.
 5. Explain the vasa recta.
- D. Describe in detail the mechanisms of urine formation.
1. Explain glomerular filtration. What is the average glomerular filtration rate per minute? How many liters of blood-derived fluid are processed daily? How much of this fluid leaves as urine?
 2. Describe the following three nephron processes: Glomerular filtration, tubular reabsorption and secretion. What regulates these processes?
 3. Know the role each of the following play in the formation of glomerular filtrate:
 - a. fenestrated capillary endothelium
 - b. basement membrane
 - c. podocytes
 4. What is net filtration pressure? What effects the filtration rate? What is glomerular hydrostatic pressure?
 5. What regulates glomerular filtration?
 - a. Intrinsic controls:
 - 1) myogenic mechanism
 - 2) juxtaglomerular apparatus
 - 3) renin-angiotensin mechanismWhat effect does the renin-angiotensin have on sytemic arterioles and aldosterone, thus blood pressure?
 - b. Extrinsic controls: sympathetic nervous system
 6. Describe tubular secretion.

7. Describe the medullary osmotic gradient. What function do the vasa recta, macula densa cells, and collecting tubules serve?
- E. Define:
1. micturition
 2. anuria
 3. tubular secretion
 4. tubular reabsorption
 5. pyelonephritis
 6. ptosis
- F. Explain the effects of:
1. aldosterone
 2. antidiuretic hormone
 3. atrial natriuretic factor on sodium and water reabsorption
- G. Describe the characteristics associated with urine. Describe the possible causes of the following urinary conditions:
1. glycosuria
 2. proteinuria
 3. ketonuria
 4. hemoglobinuria
 5. hematuria
 6. pyuria
- H. What effect do diuretics have on urine formation?
- I. Describe the circulatory system associated with the nephron. Explain the position and function of:
1. afferent arterioles
 2. glomerular capillaries
 3. efferent arterioles
 4. peritubular capillary beds
 5. vasa recta
 6. juxtaglomerular cells
- J. Where is renal blood pressure the highest? Lowest?