

# Chapter 27 - Urinary System

## *Anatomy and Physiology Text and Laboratory Workbook, Davenport, Stephen*

1. List the functions of the urinary system.
2. List the organs of the urinary system.
3. Where are the kidneys located as to the vertebral column and ribs? Which kidney is the lowest in position? Why is it lower?
4. List and briefly state a function of each of the three layers of tissues which surround the kidney.
5. Identify and give a structural description of: cortex, medulla, pyramids, papillae, columns, calyces, pelvis
6. From the renal pyramid papillae, place the following in proper sequence: ureter, minor calyx, major calyx, renal pelvis, urinary bladder.
7. What is the functional unit (blood processing unit of the kidney)?
8. Describe the glomerulus, glomerular (Bowman's capsule)- parietal and visceral layers, renal corpuscle, glomerular endothelium, podocytes, and filtration slits (or pores).
9. Be able to identify and list in the order of filtration the following components of the juxtamedullary nephron: glomerular (Bowman's) capsule, glomerulus, proximal convoluted tubule, loop of Henle, distal convoluted tubule, and collecting duct.
10. Describe the two capillary beds of the juxtglomerular nephron.
11. Describe the juxtglomerular apparatus. Describe the functions of each component.
12. About how much blood-derived fluid is filtered daily? How much of this leaves the body as urine? What are the three processes of urine formation?
13. Define: filtration. What are the two reasons why glomerular filtration is more efficient than other capillary beds?
14. List and describe the three components of the filtration membrane.
15. How does the filtration of blood depend upon the following pressures: glomerular hydrostatic pressure, glomerular osmotic pressure (blood colloidal osmotic pressure), capsular hydrostatic pressure, and effective filtration pressure?
16. What are three factors which govern filtration at the glomerular capillary bed? What is glomerular filtration rate directly proportional to? What factor "normally" regulates net filtration pressure?
17. What is the function of renal autoregulation? What is the myogenic mechanism? What is the tubulo-glomerular mechanism? Describe the mechanism that causes systemic blood pressure and blood volume to increase (how)?
18. How does the sympathetic nervous system influence renal filtration?
19. What is the difference between filtrate and urine?
20. What is tubular reabsorption? What part of the renal tubule is the most active in reabsorption?
21. List several substances reabsorbed in this region. Sodium ion absorption at the distal convoluted tubule is under the influence of which hormone? How does this influence water absorption and systemic blood pressure? How does aldosterone influence potassium levels?
22. What is tubular secretion? What are its important effects? List several materials secreted.
23. Is dilute urine produced in the presence or absence of ADH? How does ADH influence the formation of urine?
24. What is facultative water reabsorption?
25. Where are the ureters located? What is their function?
26. Where is the urinary bladder located? What is its function?
27. What is the urethra? What is its function? Describe the location and function of the internal and external urethral sphincters?
28. What is micturition? Briefly describe the control of micturition.