

The Urinary System: Anatomy Review

- Name the organs in the urinary system:
 - _____
 - _____
 - _____
 - _____
- The kidneys are _____ (behind the peritoneum) lying against the dorsal body wall in the upper abdomen.
- The _____ gland sits atop the kidneys. Blood vessels enter and leave the kidney at the renal _____.
- The functional units of the kidney are the _____. They are called _____ if they are located mainly in the cortex. They are called _____ if they are located in both the cortex and medulla.
- Blood enters the kidney through the _____ artery. The artery branches into smaller and smaller arteries and arterioles. Complete the sequence below:
_____ arteriole → _____ capillaries → _____ arteriole → _____ capillaries and vasa recta
- Complete the sequence below showing all parts of the nephron:
Bowman's Capsule → _____ convoluted tubule → _____ (both descending and ascending limb) → _____ convoluted tubule → _____ (both cortical and medullary sections)
- The renal corpuscle consists of two parts: _____ capillaries and _____. A portion of the plasma is filtered into the capsular space due to the hydrostatic pressure of the blood.
- The filtration membrane consists of:

_____ capillary endothelium,
porous _____ membrane, and
the _____ (which contain filtration slits)

This filtration membrane permits (large or small) molecules to be filtered.

9. Proximal tubule: The simple cuboidal cells of the proximal tubule are called _____ cells because they contain numerous microvilli. The microvilli increase the _____ for reabsorption.

The proximal tubule cells are highly permeable to water and many solutes. The _____ permit the movement of water between the cells.

10. Loop of Henle: The thin descending limb of the loop of Henle is highly permeable to _____ but not to _____.

The thick ascending limb of the loop of Henle is highly permeable to _____ but not to _____.

11. The thick ascending limb of the loop of Henle runs back between the afferent and efferent arterioles as they enter and leave Bowman's capsule. The juxtaglomerular apparatus consists of the _____ cells of the tubule and the _____ (modified smooth muscle) cells of the afferent arteriole.

_____ cells → serve as baroreceptors sensitive to blood pressure within the arteriole.

_____ cells → monitor and respond to changes in the osmolarity (or electrolyte composition) of the filtrate in the tubule.

12. After the juxtaglomerular apparatus, the tubule becomes the distal tubule, which merges with the cortical collecting duct. The cortical collecting duct contains two functional types of cells:

_____ cells → hormones regulate their permeability to water and solutes.

_____ cells → these cells secrete hydrogen ions for acid/base regulation.

13. The medullary collecting duct is composed of _____ cells.

Their permeability to _____ and _____ is hormonally regulated.