

What is Kidney Architecture and Zones?

Worksheet

The kidney is arranged from outside in as capsule, cortex, medulla (renal pyramids), minor calyces, major calyces, and renal pelvis, which narrows into the ureter.

Questions

1. Which zone contains the glomeruli?

- A) Medulla
- B) Cortex
- C) Renal pelvis
- D) Ureter

2. What is the apex of a renal pyramid called?

- A) Renal papilla
- B) Renal pelvis
- C) Minor calyx
- D) Renal cortex

3. What is the correct order of urine drainage after the minor calyx?

- A) Ureter major calyx pelvis
- B) Major calyx renal pelvis ureter
- C) Renal pelvis cortex ureter
- D) Medulla cortex ureter

4. How many renal pyramids does a human kidney typically have?

- A) 1-2
- B) 3-5
- C) 8-18
- D) 30-40

5. A biopsy sample shows glomeruli and proximal convoluted tubules. Which kidney zone was sampled?

6. A kidney stone forms at the tip of a renal pyramid. Which structure does it first enter as it passes?

7. Trace the path of urine from formation to leaving the kidney.

8. Define: Where does filtration occur in the kidney?

9. Define: What structures make up the medulla?

10. Define: What is a renal papilla?

Answer Key

1. B) Cortex - Renal corpuscles (glomeruli) sit in the cortex, the outer filtering zone.
2. A) Renal papilla - The renal papilla is the tip of the pyramid where urine exits into a minor calyx.
3. B) Major calyx renal pelvis ureter - Minor calyces merge into major calyces, which drain into the renal pelvis, which narrows into the ureter.
4. C) 8-18 - A typical kidney contains roughly 8 to 18 renal pyramids in the medulla.
5. Glomeruli (renal corpuscles) and convoluted tubules are located in the cortex The medulla contains loops of Henle and collecting ducts, not glomeruli Therefore the sample is from the cortex
6. The apex of a renal pyramid is the renal papilla Urine (and any stone) from the papilla drains into a minor calyx The stone next enters the minor calyx
7. Filtration occurs in the cortex (glomerulus) Filtrate flows through tubules into the medulla toward the papilla Urine drains: minor calyx major calyx renal pelvis ureter
8. In the cortex, at the renal corpuscles (glomerulus + Bowman's capsule).
9. Renal pyramids, containing loops of Henle and collecting ducts.
10. The apex of a renal pyramid, where urine drains into a minor calyx.

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