

Structure And Function Of Kidney

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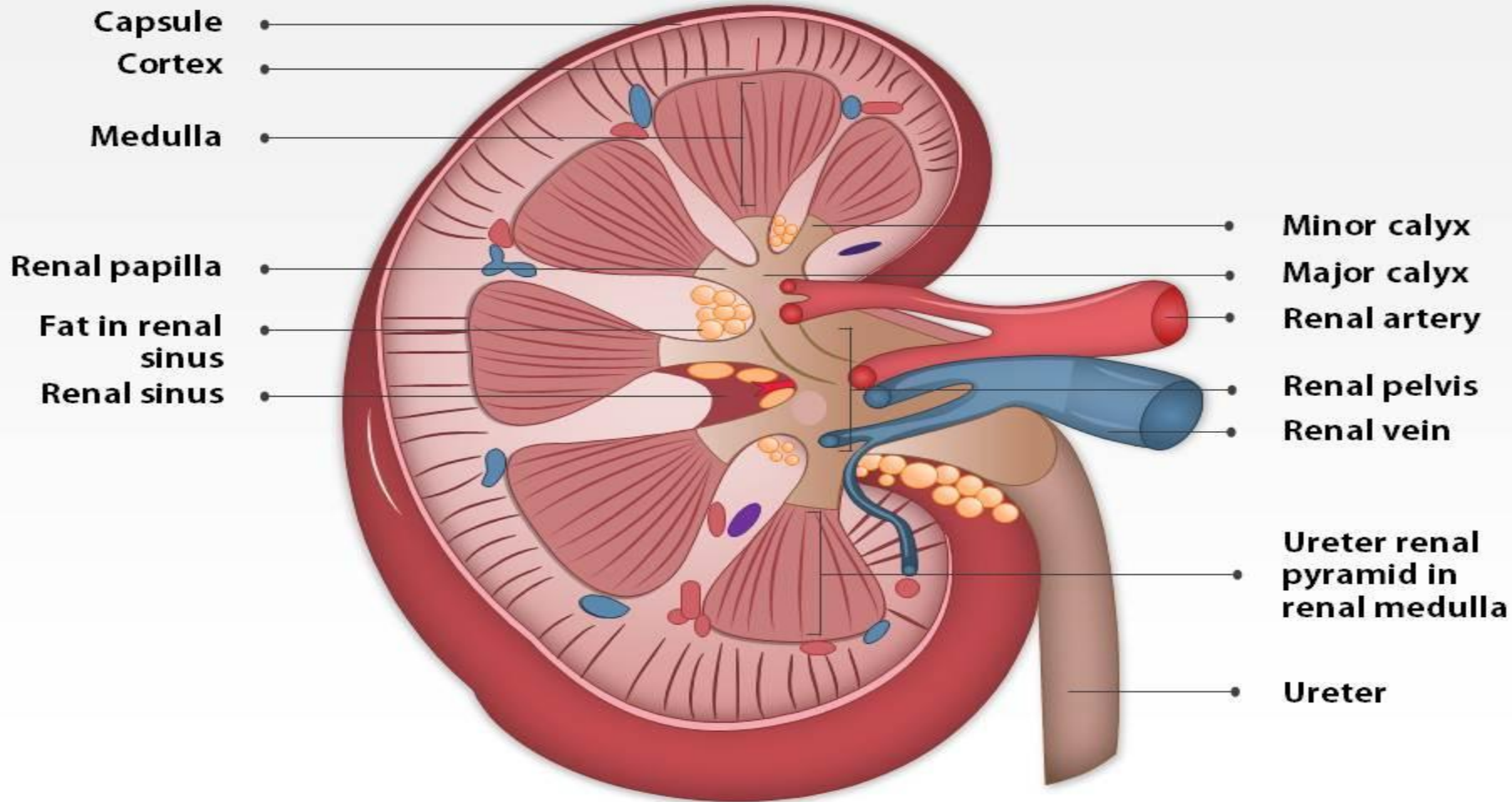
Forth Semester

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Structure and Function of the Kidney

- The functional unit of the kidney is the nephron
- The major functions of the kidney are to maintain extracellular fluids , to eliminate wastes resulting from normal metabolism , and to excrete xenobiotics and their metabolites
- Mammalian kidneys have 10,000-1,000,000 nephrons per kidney

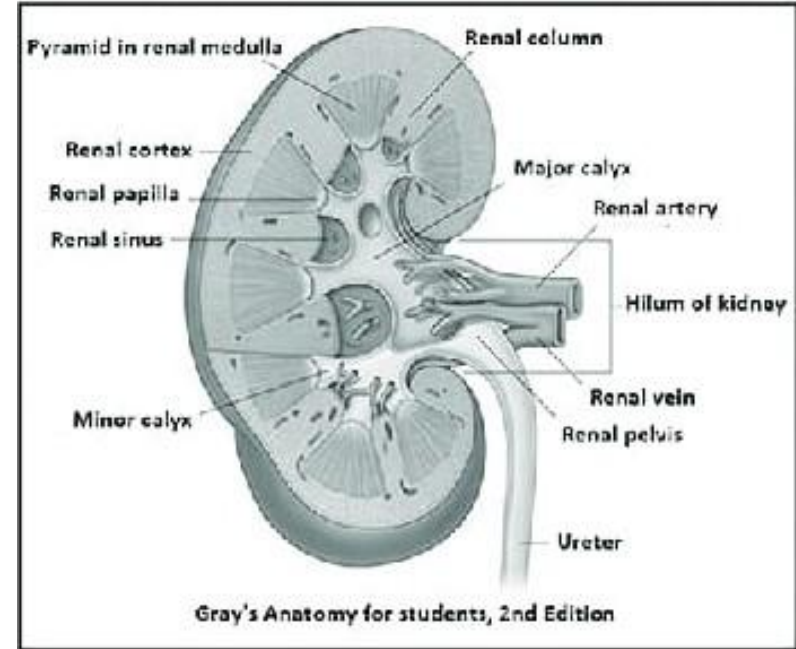
Anatomy of Kidney



Describe the structure of kidney

Kidney has a dark brown outer cortex and light brown inner medulla .

- **CORTEX** is an outer peripheral zone that extends into the medulla between adjacent pyramids as the renal columns
- **MEDULLA** is inner to cortex , composed of renal pyramids , the bases of which are towards the cortex , and the apices (renal papilla) medially



Functions of the kidney

1. Regulation of inorganic ions (Na^+ , K^+ , Ca^{++} , Cl^- , Pi , Mg^{++})
2. Regulation of water balance & osmolality
3. Excretion of nitrogenous wastes (urea , creatinine)
4. Excretion of foreign chemicals (drugs , pollutants , etc.)
5. Regulation of pH , and HCO_3^-
6. Synthesis of renin
7. Synthesis of erythropoietin ; activation of vitamin D3
8. Gluconeogenesis (liver much more important)