

## Week 6: Urinary

### Organs of the urinary system

- Kidneys: filter 200L of fluid daily
- Urinary bladder: storage of urine before excretion
- Ureters: transport urine from kidneys to bladder
- Urethra: transport urine out of the body

### Body fluids

Extra cellular- 17L (plasma 3L, interstitial fluid 8L and transcellular fluid 1L), Intracellular – 25L

### Kidney's function:

- excretory: removal of toxins, wastes and excess form of blood
- regulatory: Blood volume, chemical composition, pH
- Metabolic: gluconeogenesis during prolonged fasting
- Endocrine: secrete hormones, renin and EPO
- activate vitamin D: bone mineralization, mental health, immune system.

### Kidney anatomy

- Right is lower than left because of liver
- ureters, renal blood, lymphatics and nerves enter and exit the hilum

### supportive tissue in the kidney

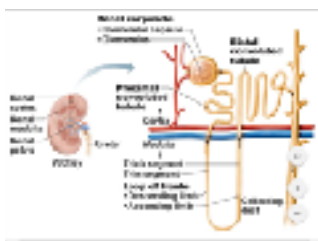
- renal fascia: anchoring layer, fibrous connective tissue
- perineal fat: a fatty cushion
- fibrous capsule: prevents spread of infection to kidney from surroundings regions

### parts of the kidney

- pelvis
- cortex
- medulla
- lobes= medullary pyramid and its surrounding cortex tissue (7-8 in the kidney)

### internal anatomy of the kidney

minor calyx is where urine flows to then forms a major calyx which drains into pelvis  
nerve supply is predominately sympathetic so vessel diameter can be altered.



### Nephrons

- structural and functional units that form urine

### Bowman's capsule

- parietal layer: captures filtrate
- visceral layer: used in filtration

### proximal convoluted tubule

- lots of microvilli and large mitochondria
- reabsorb the filtrate from capsule (cortex)
- active transport

### loop of Henle

- descending limb is permeable to water
- ascending limb permeable to NaCl but not water

### distal convoluted tubule

- cortex
- secretes