

Blood circulation @ nephrons

renal artery → renal arterioles → glomerulus + Bowman's capsule → glomerulus (in Bowman's capsule) → mass of blood capillaries → blood capillaries surrounding the nephron → unite to form venules → join renal vein

Ultrafiltration + selective reabsorption

1. H₂O
2. Glucose
3. Amino acids
4. Nitrates
5. Nitrogenous wastes

ultrafiltration → small molecules out of glomerulus → filtrate

- pressure where all effluent arterioles are arterioles
- small molecules are filtered out of the blood plasma in the glomerulus.

Urine formation in nephrons

① Ultrafiltration (around corpuscle)

→ filtrate

- i. Force: high hydrostatic pressure
- ii. Filter: partially permeable basement membrane (that wraps around the glomerular blood capillaries)

Filtrate

only allow H₂O & my. small molecules to pass

proximal convoluted tubule (~80% filtrate reabsorbed)

glomerulus → filtrate → collecting duct → renal pelvis

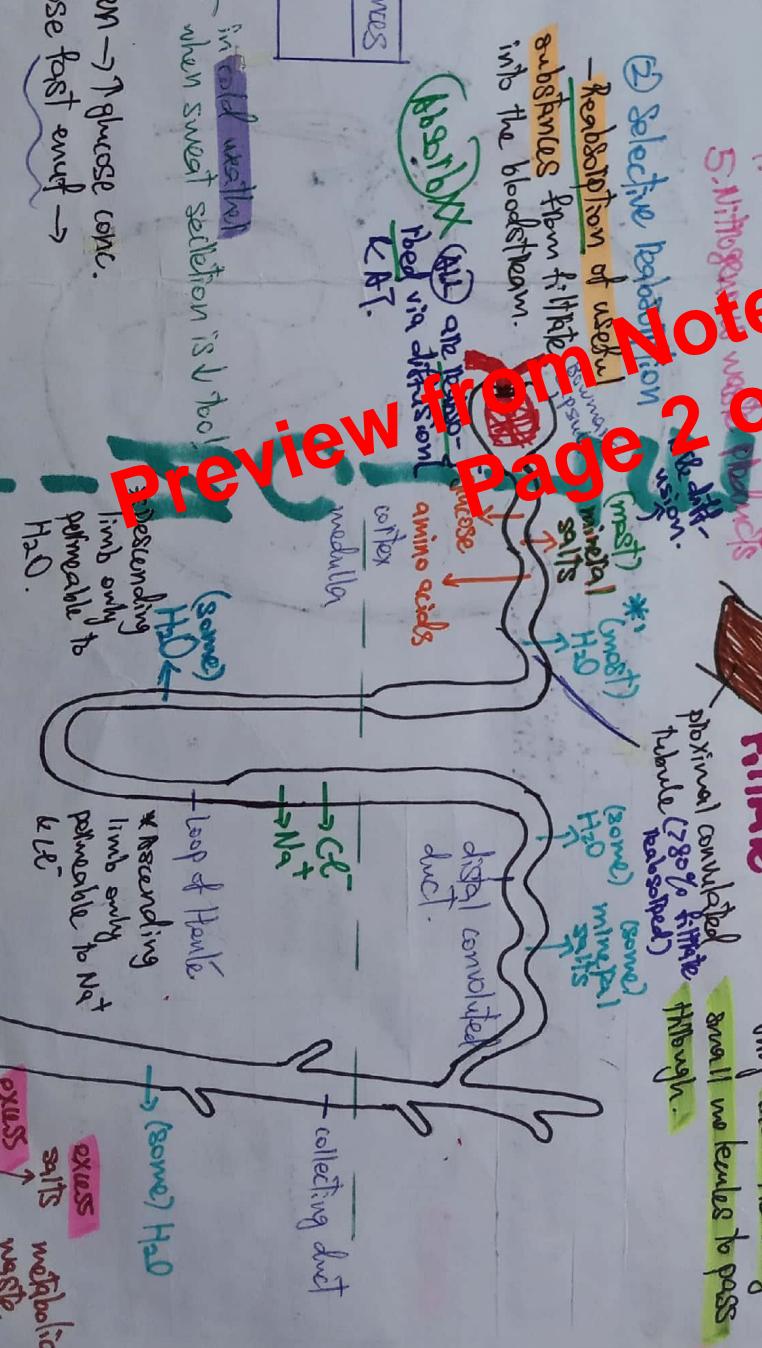
- i. Force: high hydrostatic pressure
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Composition of urine:

water	mineral salts	urea	other nitrogenous substances
96.0%	1.8g	2.0g	0.2g

- △ protein-rich diet: ↑ urea conc.
- △ water-rich diet: ↓ vol. of urine, more diluted → when sweat secretion is ↓ too!
- △ high-salt diet: ↑ salt conc.
- △ diabetic: unable to store up excess glucose as glycogen → ↑ glucose conc. in blood → nephrons can reabsorb all glucose fast enough → ↑ glucose conc. in urine!
- △ differ by diet, weather & intake of drugs

Preview from Notesale.co.uk



* reabsorption of solutes → water potential difference → H₂O reabsorbed by osmosis