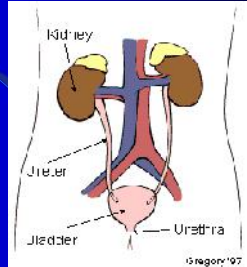


SISTEMA URINARIUS

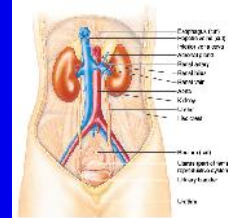
OLEH:
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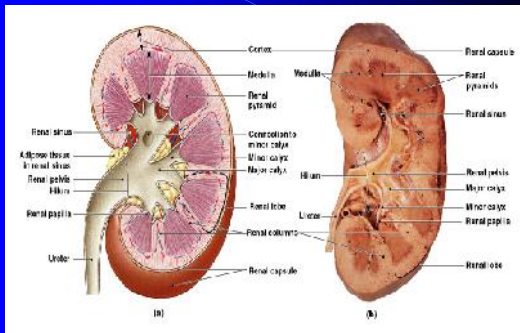


Sistem urinarius

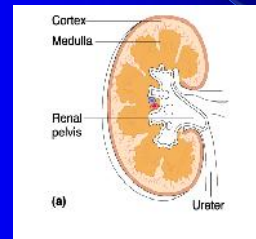
- Sistem yg berfungsi utk mengeluarkan zat-zat yg sudah tidak dibutuhkan oleh tubuh.
- Ginjal, ureter, kandung kemih, & uretra.



GINJAL



Struktur anatomi ginjal



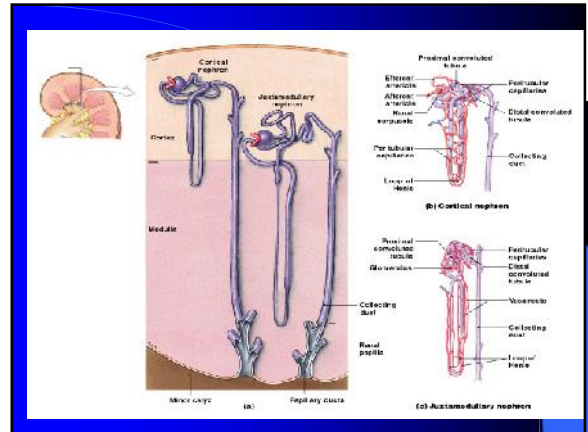
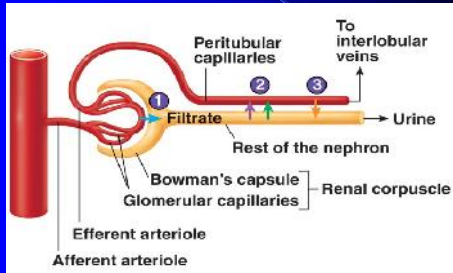
Ginjal

- Fungsi: mengatur keseimbangan air, konsentrasi garam dlm darah, & mengatur keseimbangan asam basa.
- Letak ginjal kanan lebih rendah drpd ginjal kiri. Struktur ginjal: jutaan nefron (unit fungsional ginjal). Nefron → glomerulus & pipa-pipa tubulus.

Ginjal

- Fungsi ginjal:
 1. Filtrasi oleh glomerulus
 2. Reabsorpsi oleh tubulus
 3. Sekresi oleh tubulus
- Ginjal jg berfungsi sbg kelenjar endokrin → eritropoetin (menstimulasi pembentukan sel darah merah)

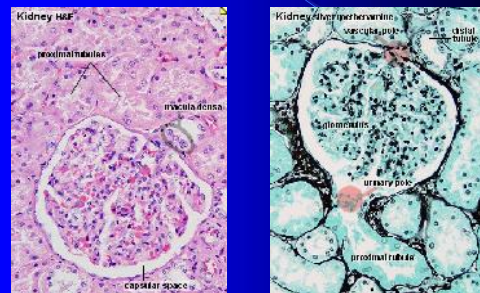
Fisiologi Ginjal



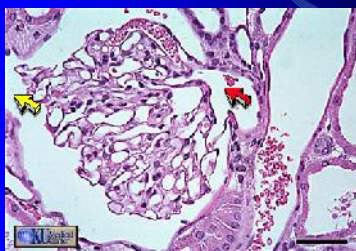
Ginjal-glomerulus

- Diameter 0,2 mm, mengandung kapiler-kapiler darah, mpy kutub vaskular & kutub urinarius.
- Di seb. luar dibungkus 2 lapisan (capsula Bowman's). Lap. luar (lap. parietal) → epitel squamous simpleks. Lap. dlm (lap. visceral) → podosit
- Filtrat glomerulus: 125 ml/mnt → 124 ml diserap kembali di tubulus.
- Macula densa: tubulus yg mengandung barisan inti padat pd dinding yg terikat dg kutub vaskular glomerulus.

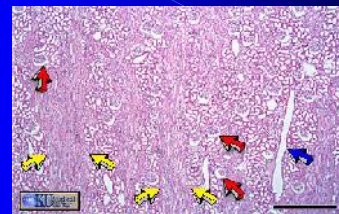
Ginjal



Glomerulus

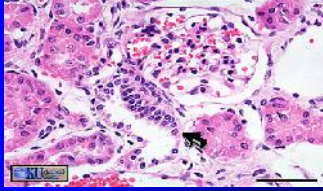


Renal cortex

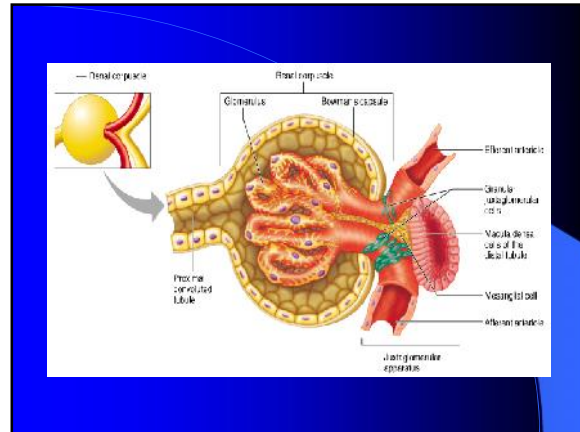


- Anak panah merah: glomerulus
- Anak panah kuning: medulla ginjal
- Anak panah biru: arteri interlobularis

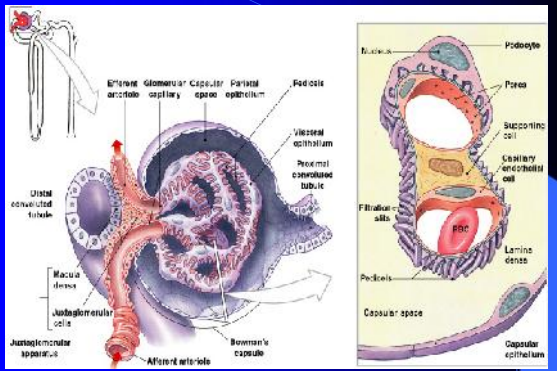
Macula densa



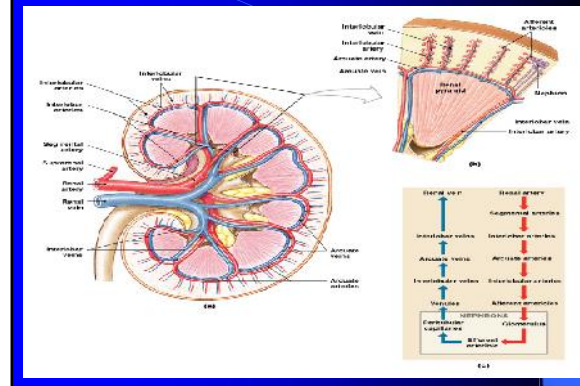
- Keterangan:
- Anak panah hitam: macula densa → memonitor kadar Cl dlm tubulus distal, shg apparatus juxta glomerulus dpt mengatur laju filtrasi glomerulus.



CORPUSCULUM RENAL



SUPLAI DARAH GINJAL



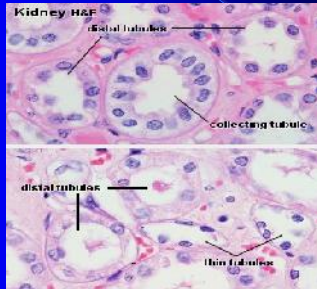
Tubulus ginjal

- Jalannya urine: tubulus proksimal → ansa henle → tubulus distal → ductus collectivus → calix minor → calix mayor → pelvis renis → ureter → VU → uretra.
- Tubulus proksimal: epitel kolumnar rendah, hampir semua substansi nutrisi yg bermanfaat diserap kembali (glukosa, AA, protein, vitamin).
- D tubulus proksimal: volume filtrat glomerulus berkurang 75 %, reabsorpsi ion Na, Cl, absorpsi air.

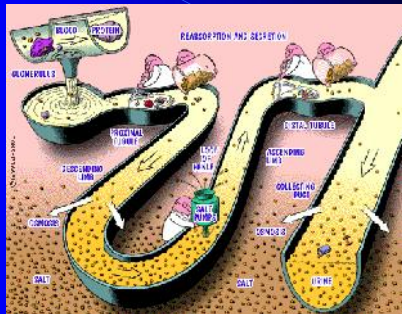
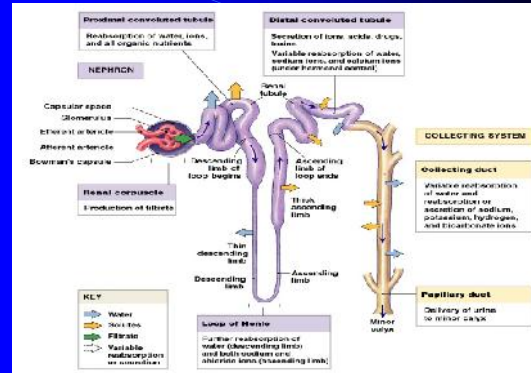
Tubulus ginjal

- Tubulus distal: transport aktif Cl, Na keluar lumen tubulus ke ruang peritubular → pemekatan urine. Sel tubulus distal sensitif thd aldosteron (disekresi kel.adrenal zona glomerulosa) → stimulasi resorpsi aktif on Na, ekskresi ion K.
- Ductus collectivus tempat kerja ADH

Tubulus ginjal



NEFRON

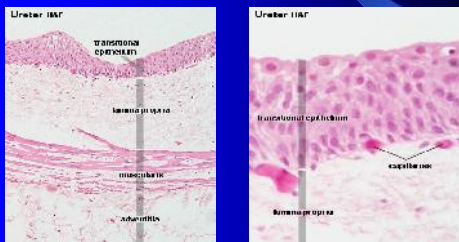


THE NEPHRON

- | | |
|-------------------------------------|---|
| 1. Proximal convoluted tubule | 1. Simple cuboidal epithelial cells with prominent brush borders of microvilli. |
| 2. Descending limb of Loop of Henle | 2. Simple squamous epithelial cells |
| 3. Ascending Limb of Loop of Henle | 3. Simple cuboidal to low columnar epithelial cells. |
| 4. Distal convoluted tubules | 4. Simple cuboidal epithelial cells |

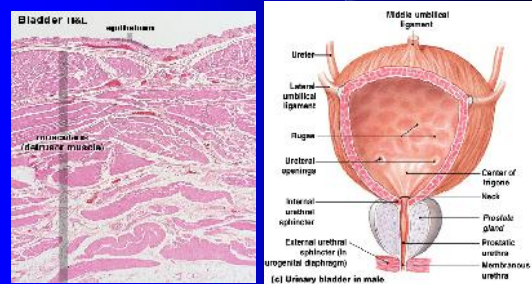
Ureter

- Menghubungkan ginjal dg kandung kemih. Jumlah 2 (kanan & kiri), panj: 35-40 cm.



Kandung kemih

- Sbg penampung urine



Uretra

- Saluran yg berjalan dr kandung kemih ke arah luar.
- Pd wanita, panj: 2,5-3 cm. Pd laki-laki, panj: 17-22,5 cm.