

# The Urinary system ( excretory system )

# The Urinary system ( excretory system )

- Urinary system consist of :-

- a- Paired Kidneys                      b- paired ureters

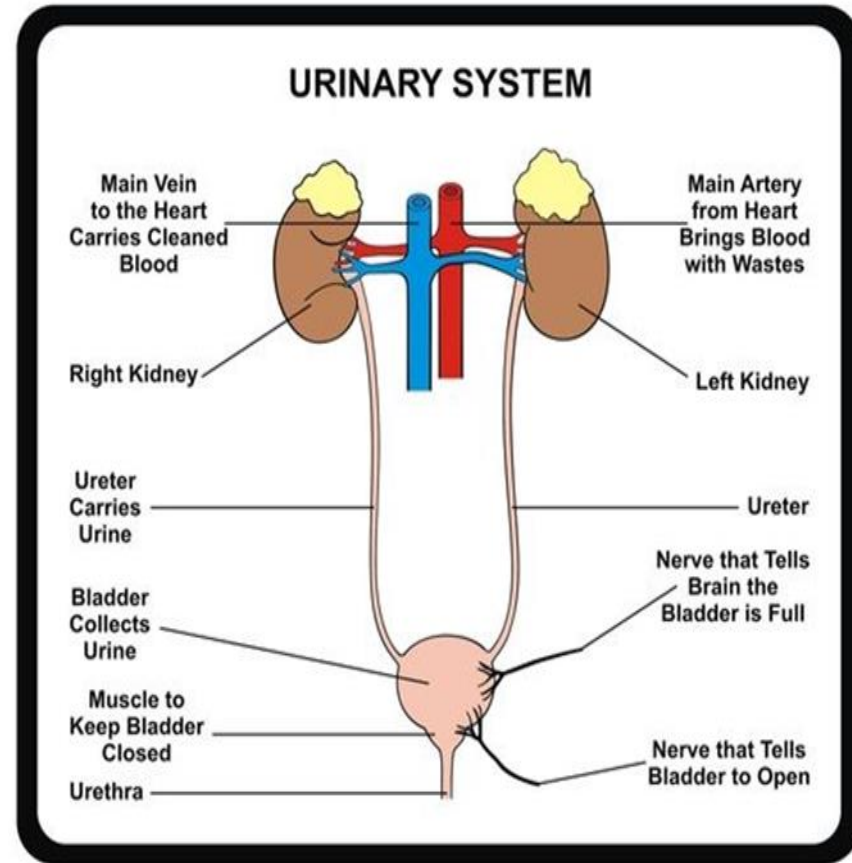
c- Bladder      d- Urethra

- functions

a- filtration of wastes from blood

b- selective Reabsorption of water and solutes

c- Excretion of wastes and excess water as urine



**Note :-** The Two kidneys produce 125 ml of filtrate per minutes of which 124 ml reabsorbed and 1 ml released into the ureters as urine . 1500 ml of urine is formed in ( 24 hours)

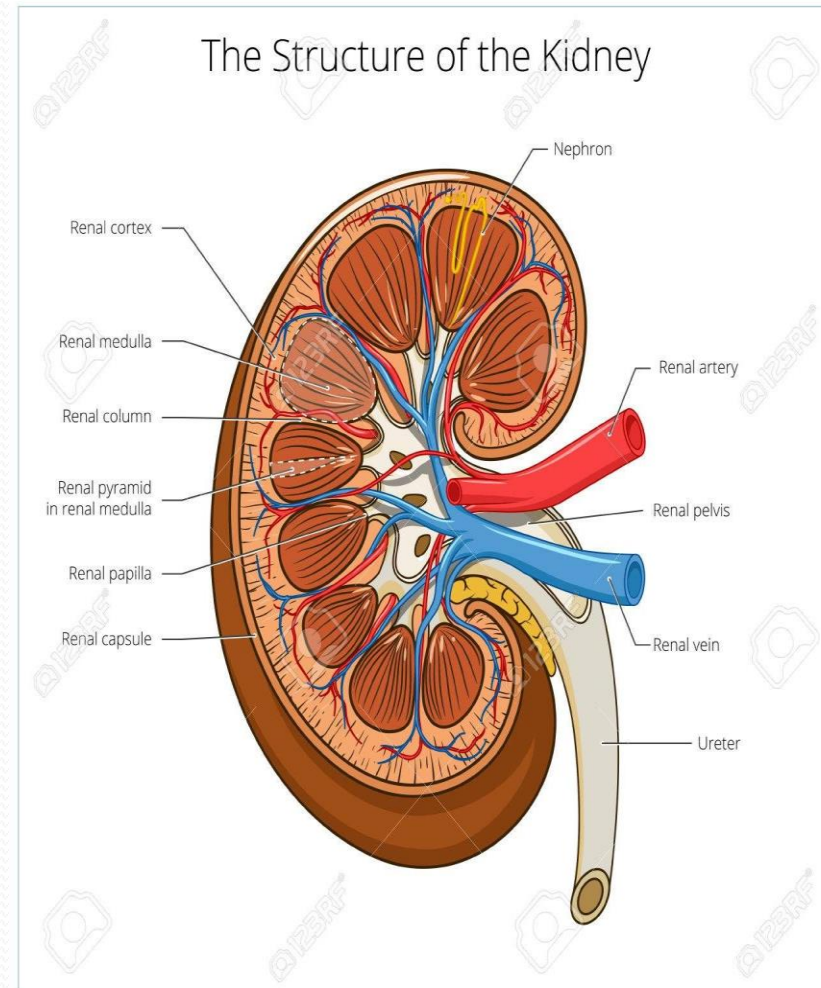
## Kidneys

Each kidney is bean – shaped with a concave surface both covered by a thin fibrous capsule.

Each kidney contains (1...1.4) millions of nephrons.

### - Each Nephron consist of :-

- a- Renal corpuscle
- b- Proximal tubule
- c- Nephron loop ( loop of Henle ) .
- d-Distal tubule .
- e- collecting tube
- f- collecting ducts



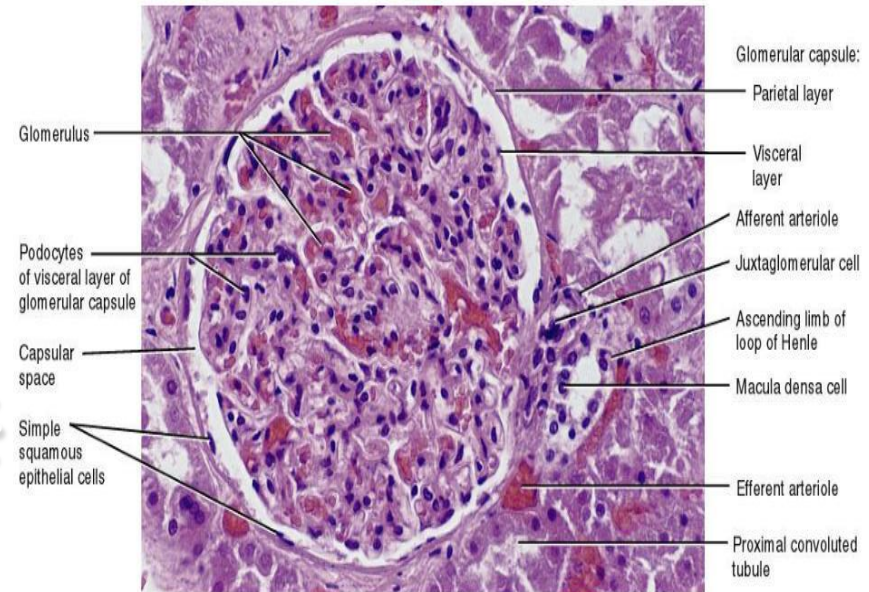
# Histology structure of Renal corpuscle

- Renal corpuscle is surrounded by double walled of simple squamous Epithelium supported by basal lamina propria .
- The internal layer of is generlly modified to certain cells called podocytes several primary processes ( pedicles ) or foot .
- In addition to endothelium renal corpuscle also contain mesangial cell .

## their functions :-

- They provide internal support and act as phagocytosis and secretion .

# Histology of Renal Corpuscle



(b) Renal corpuscle

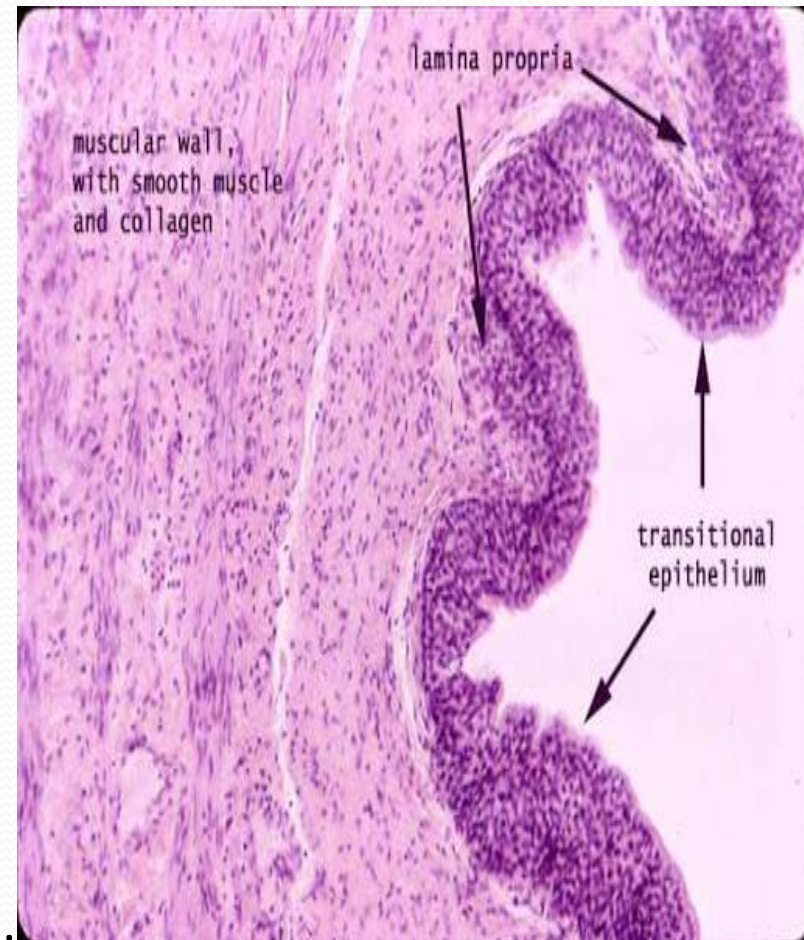


## Histology of urethra

### ( Bladder and ureter )

- The Three structures have the same basic Histologic structure
- walls of these organs becoming gradually thicker closer to the bladder .
- The mucosa all organs is lined by unique stratified transitional epithelium ( urothelium ) tissue .

This is surround by lamina propria and submucosa followed by adense sheath of intermoven smooth muscle layer and Adventia .



## **Urothelium is composed of three layer :-**

a- asingle layer of basal cells

b- an intermediate region of one to several layers of columnar cells

c- a supperfical layer of umbrella cells to protect the underlying cells aganist cytotoxic effects of urine .



**quiz :- Umbicella cells are well developed in bladder . why ?**

يرجى ارسال الاجابة على الايميل التالي:

[ali.s.moalif@mustaqbal-college.edu.iq](mailto:ali.s.moalif@mustaqbal-college.edu.iq)

سيكون الامتحان الشهري يوم السبت القادم للمحاضرات الثلاث الاولى السابقة

الساعة التاسعة مساءً

**Note :- All urinary organs are covered externally by adventitial layer except upper part of bladder .**