

أي تعديلات على الشيت سوف تجدونها في هذا الرابط

[http://](http://bit.ly/ODSheet10Anatomy)[bit.ly/ODSheet9Anatomy](http://bit.ly/ODSheet9Anatomy)

\*ملاحظة: التعديلات تتم بعد اكتشاف اي أخطاء في الشيت (علمية أو املائية) بعد أن يتم اعادة مراجعتها من الفريق الأكاديمي و هذه العملية قد تحتاج وقت لذلك اذا كان لديكم أي ملاحظة عن أخطاء في الشيت تواصلوا معنا

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\*The urinary system is made of :

Kidneys, pairs of urters come from the kidneys and go into the urethra, before going into the urethra as continuation of final estimation of the urine, urine go into the urinary bladder.

\*the urinary bladder is a reseal valve, located in the true pelvis and covered by the pertonium on it's posterior surface.

\*the urters located in the abdomen and they are always retrapertonial as well as kidneys.

\*the urethra differ between female and male and located within the pelvic floor.

\*the 2 kidneys are similar except that they are located one higher than the another:

The right kidney is **LOWER** because of the presence of the **LIVER** .

 the Lt kidney is higher, actually in costal, overlapping the spleen and in contact with the tail of pancreas

\*the kidneys extend from a line that passes through the 12th thoracic vertebra to a line passes the 3rd lumbar vertebra.

\*the superior pole of kidneys are covered by suprarenal glands.

\*for each kidney :

 .2 poles : superior and inferior

 2borders : lateral and medial

 2surfaces : anterior and posterior

\*

the medial border “kidney is a bean like shape”contains invagenation ( renal hilus) where an artery, vein and nerve are found anterior to the pelvis of kidney which continue as the uretha

 .

\*the anterior surface of kidneys are covered by peritoneum.

The last thing we have the pelvis of the kidney that continue downward as the ureters and the pelvis is located the most posterior

The kidney is retroperitoneal because its covered by the peritoneum (the parietal peritoneum is covering the anterior aspect of the kidney)

\*the kidneys have their own capsule,the capsule is adhering the prachyma, it is very hard to remove this capsule.(renal capsule).

\*outside the renal capsule there is the adipose capsule and then peritonium anteriorly, outside the peritonium there is the renal fat. (sometimes the renal fat is very much so it protects the kidney from the outside )

Adipose capsule is fat that protects the kidney

The major arteries is the renal artery

\*slide 14 :coronal section :-

You will be able to see two portions: one outside which is the cortex and the one that is

inside is called the medulla

the cortex of the kidney invaginate between the medulla and this structure are called cortical rays or medullary rays these are called pyramids of the kidney which is located within the cortical aspect .

 .the cortical rays separate the pyramids.

 .each kidney contain 10 to 15 pyramids.

\*renal artery divided into segmental and thenwill divide again into Lobar arteries.

\*each pyramid is made or irrigate by one or twolobar artery

\*lobar divide into lobular and then give the accurate artery, this gives intra lobular arteries which go into the cortex.

Its very important to know that pyramids have rays called pyramidal rays and the cortical rays are nothing but the rays that exist between the pyramids

Within the kidney in the cortical region we have the nephron that is made of arteries that comes out from the accurate arteries and make the afferent arterioles (enters inside capsule of bowman)

\*\*\*The arteries enters the Capsule of bowman and coil inside it and exits as afferent arterioles .

\*\*afferent +bowman+efferent= glomerulus inside it the primary urine is made

as the water and salts penetrates from the arteries(afferent and efferent arteries)into bowman’s capsule which is part of glomerulus that has openings

\*the fluid passes through the openings of Bowman’s capsule epithelium,which is simple squamous, enters the proximal convoluted tube, which execets only into the cortex, then this proximal convolute tube become smaller and forms a lobe and this lobe is called Ansa Of Henley (so the fluid continue through it) . Ansa Of Henleycontains descending part , thin segment (Lobar part) and ascending part which ends on the distal convoluted tube .

Glomerulus + proximal convolutes tube + Ansa Of Henley + distal Convoluted Tube = THE NEPHRON = a machine the makes the URINE .

The Urine that is primarily formed by the Glomerulus passes through the > proximal > Ansa > Distal > Collecting Duct …

\*the urine then go into the collecting duct(which is located in the pyramids ) the cortical rays and pyramids are made of collecting ducts.

\*sometimes the ansa of Henley doesn't reach the cortex

Cortical nephrons are called juxtaglomerular nephrons because they will go into the medulla .

(The Ansa of Henley is long so they will go into the medulla )

So juxtaglomerular nephrons are different than cortical nephron because of the presence of the Ansa Of Henley in the Medulla

The primary ducts opens into small regions called minor cortexes

Each pyramid has appex oriented to the pelvis of kidney and a base oriented to the cortex.

\*in the pelvis you can see papillae(each papillae has openings ), the ducts open in the papillae into the minor calyx and then major calyx.

Some minor calyxes collect the blood from the pyramids and drive the blood into major calyxes and the major calyxes which are three or four will empty or drive the final urinary into the pelvis then to the ureter .

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