

***Tikrit University***

***College of Nursing***

***Basic Nursing Sciences***



**First Year - 2023-2024**

**Anatomy**

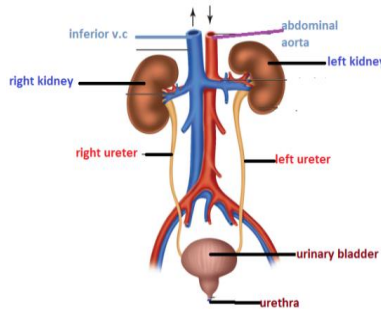
***Urinary system***

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## ☒ Urinary system

- The urinary system helps the body to get rid of **liquid waste** called **urine**.
- urinary system includes:

1. A pair of kidneys
2. Ureters
3. Urinary bladder
4. Urethra



### 1. kidneys

☒ The nephron is the functional unit of the kidney

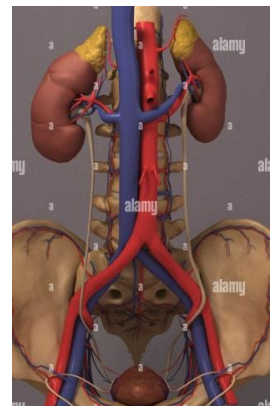
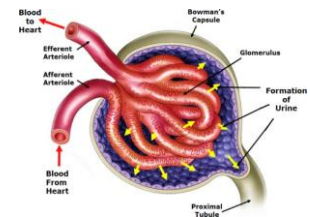
☒ Kidneys are paired, reddish, bean-shaped organs

☒ Location

- Kidneys are positioned against the posterior wall of the abdominal cavity

☒ **Extension:** between the levels of the twelfth thoracic and the third lumbar vertebrae

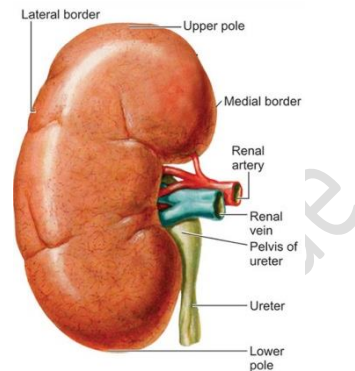
- The right kidney is usually lower than the left



## External anatomy of kidneys

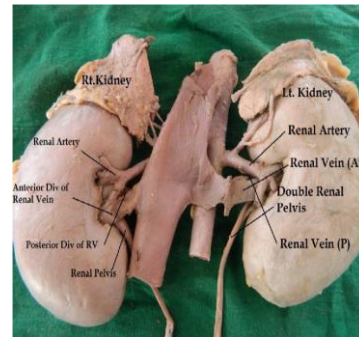
### ☒ Each kidney has

1. two surfaces
  - anterior
  - posterior
2. two poles
  - upper pole capped by the adrenal gland
  - lower pole
3. two borders
  - later border :is convex
  - medial border : is concave
    - ✚ On the medial border is **hilum** of kidney



### ❖ What is the hilum of kidney

- ◆ A vertical opening at the middle of the medial border
- ◆ transmits the renal artery, renal vein, renal nerves and renal pelvis.

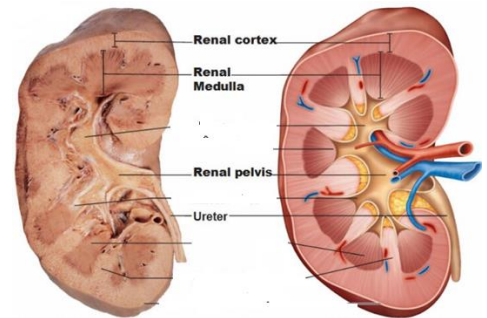


- ❖ Size of the kidney: 10 cm long, 5 cm wide and 2.5 cm thick.

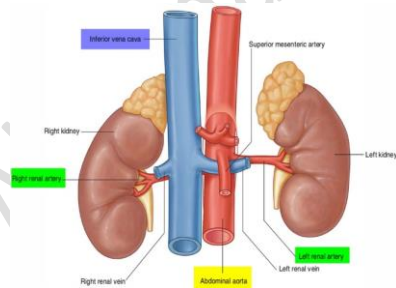
## ❖ Internal anatomy of kidneys

☒ The kidney through coronal section show three regions

- a- **Renal cortex** The outer light red coloured
- b- **Renal medulla** has conical structures called renal pyramid
- c- **The renal pelvis**



❖ **Blood supply of kidney**: each kidney by the renal artery branch from abdominal aorta



## 2. ureters

☒ **Definition**: it is a muscular tube transporting urine from kidney to urinary bladder.

☒ **Beginning**: It begins as a continuation of pelvis of kidney .

☒ **Course** It can be divided into two parts:

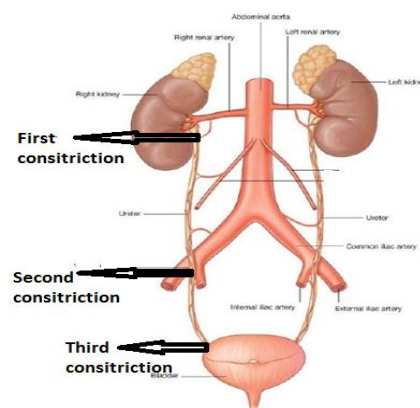
1. Abdominal part
2. Pelvic part

☒ **Length**: 25 cm long



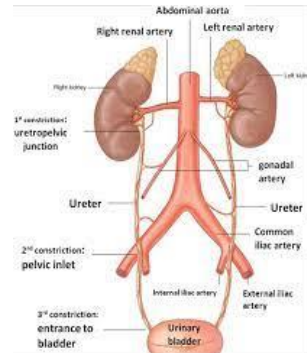
☒ **Constrictions of the ureter** :

1. at junction of ureter and pelvis
2. at the site of crossing the bifurcation of common iliac artery.
3. inside the wall of urinary bladder



❖ Arterial supply of ureter by branch from:

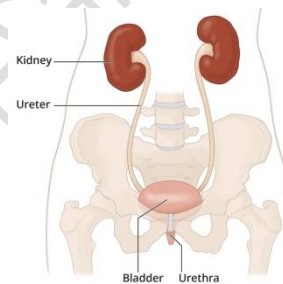
1. Renal artery
2. Gonadal artery
3. Common iliac artery
4. Internal iliac artery



3-.Urinary bladder

Site:

- In adult :
  - it is entirely situated in the pelvic cavity when **empty**
  - it expands superiorly into the abdominal cavity when **full**
- At birth, the bladder is almost entirely abdominal;

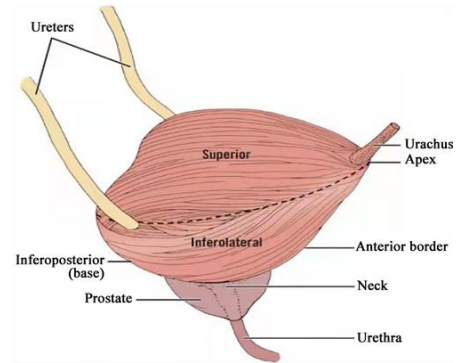


- ❖ Capacity, the average capacity of the bladder is 300 – 500 cc

❖ **Shape :It has**

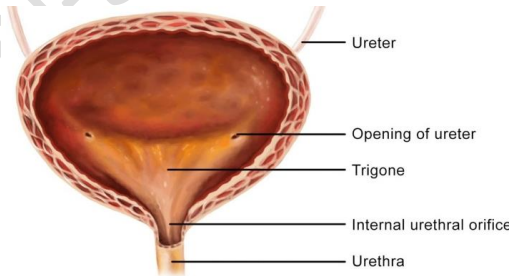
○ **The empty bladder is pyramidal in shape that has .**

1. **Apex: Directed forward**
2. **Base: Directed Backward**
3. **superior surface,**
4. **two inferolateral surfaces.**
5. **The neck:**
  - **the most inferior part**
  - **the most “fixed” part**



✚ **Interior of the urinary bladder:**

- the mucosal lining on the **base** of the bladder is smooth
- the smooth triangular area between the openings of the ureters and urethra on the inside of the bladder is known as the **trigon**



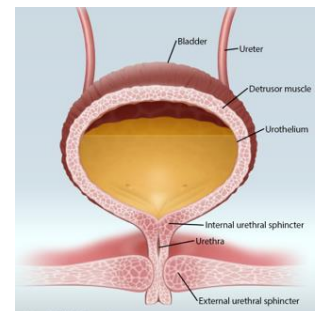
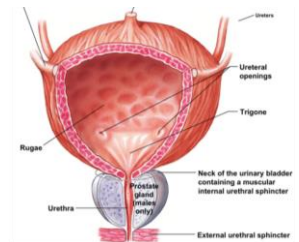
❖ **sphincter of urinary bladder**

1. **Internal urethral sphincter:**

- Located at the opening of the bladder to the urethra.
- It is **smooth, involuntary** muscle

2. **External urethral sphincter:**

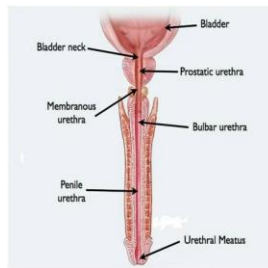
- surrounds the area of the urethra outside the bladder.
- It is **skeletal voluntary** muscle



## Urethra

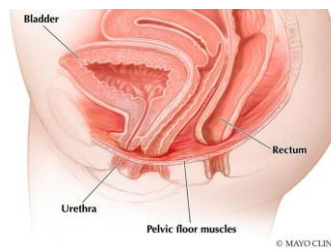
### Male:

- **Length: 20 cm**
- **Divided into three parts:**
  1. Prostatic Urethra
  2. Membranous Urethra
  3. Penile (Spongy) Urethra



### Female:

- **Length: 4 cm**
- **lies anterior to the vaginal**



### Foley catheter

- **A Foley catheter is a sterile tube that is inserted into bladder to drain urine**

