



**SNS COLLEGE OF ALLIED HEALTH SCIENCES**  
SNS Kalvi Nagar, Coimbatore - 35  
Affiliated to Dr MGR Medical University, Chennai



**DEPARTMENT : OPERATION THEATRE AND  
ANAESTHESIA TECHNOLOGY**

**COURSE NAME : ANATOMY**

**UNIT : EXCRETORY SYSTEM**

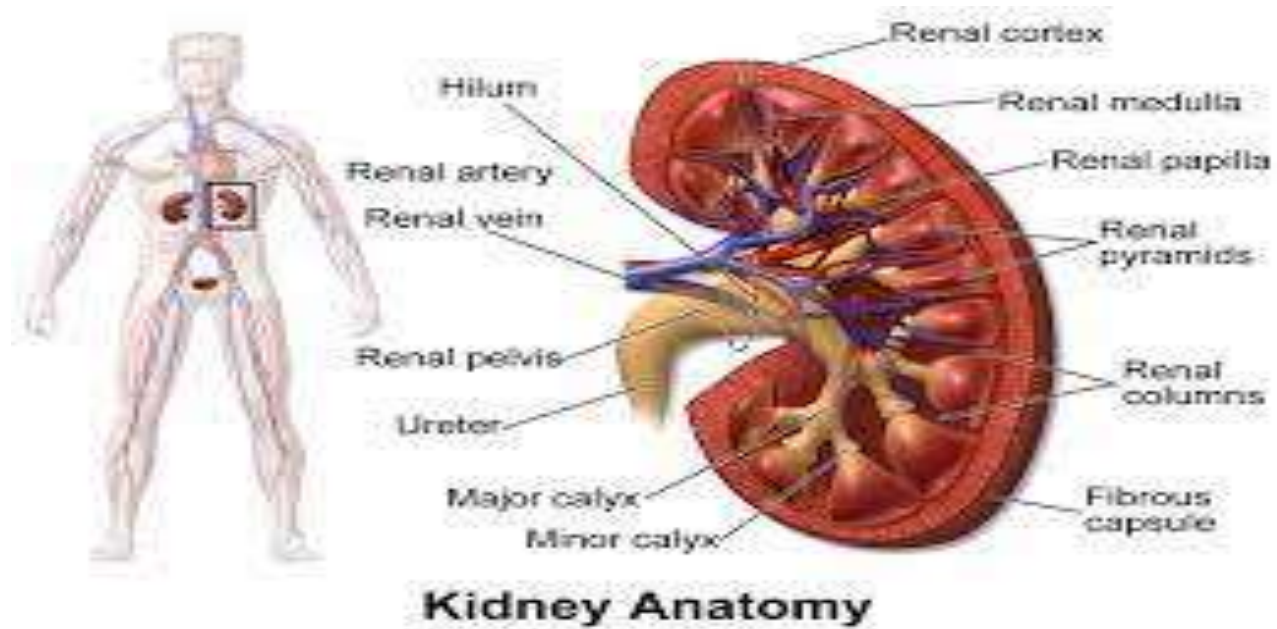
**TOPIC : KIDNEY**



# KIDNEY



- Kidneys are a pair of excretory organs situated on the posterior abdominal wall, one on each side of the vertebral column, behind the peritoneum
- They remove waste products of metabolism and excess of water and salts from the blood, and maintain its pH

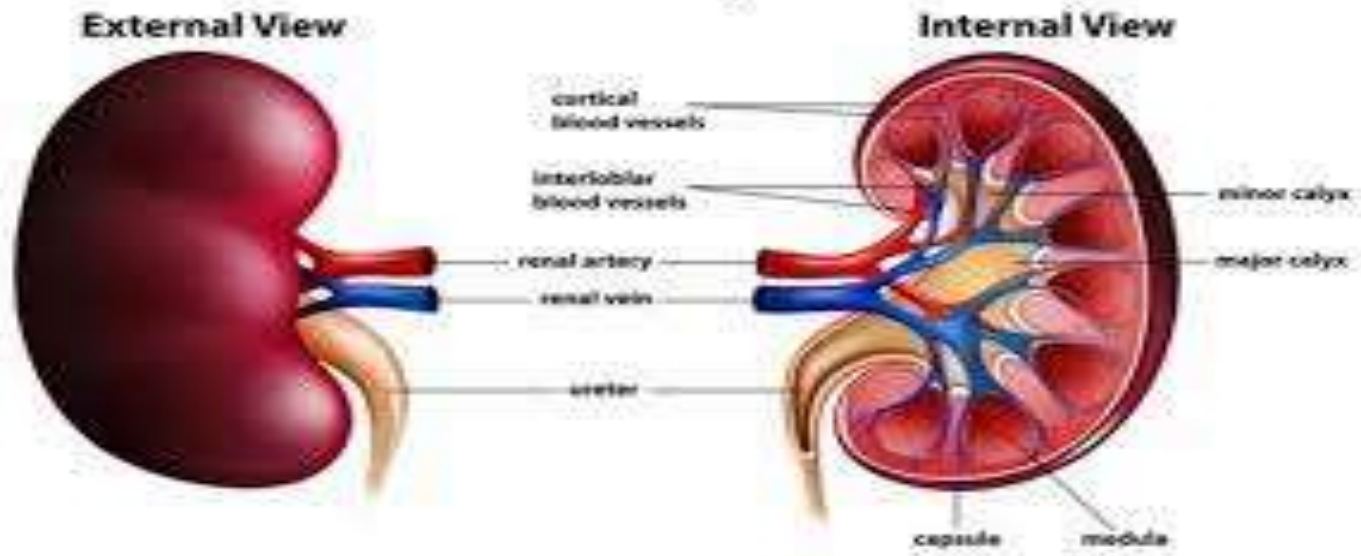




- ✦ Bean shaped
- ✦ Weight
  - ✘ Females 135g
  - ✘ Males 150g
- ✦ Poles, surfaces, borders & hilum



# Human Kidney Anatomy

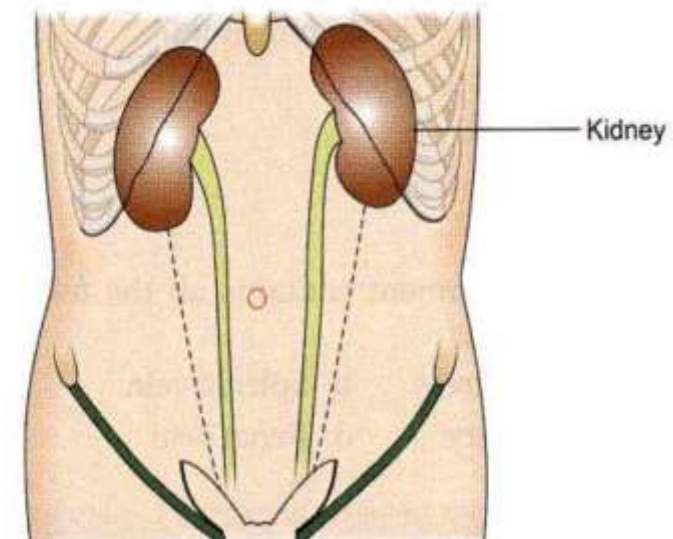




## LOCATION



- The kidneys occupy the epigastric, hypochondriac, lumbar and umbilical regions
- Vertically they extend from the upper border of twelfth thoracic vertebra to the centre of the body of third lumbar vertebra
- The right kidney is slightly lower than the left, and the left kidney is a little nearer to the median plane than the right





# Relations of kidney with other organs and structures



kidney has :

- ❖ Anterior and posterior surfaces
- ❖ Lower and upper extremities
- ❖ Medial and lateral border



## Anterior surfaces right kidney



It's relations

□ Upper part

❖ With suprarenal glands

❖ With the liver

❖ With duodenum

□ Lower part

❖ With right colic flexure of ascending colon

❖ With small intestine





## CAPSULES / COVERINGS



- Fibrous capsule
- Perirenal/perinephric fat
- Renal fascia
- Fascia of Gerota
  - Anterior – fascia of Toldt
  - Posterior – fascia of Zucherbandl
- Pararenal/paranephric fat



## TWO POLES OF THE KIDNEY



- The upper pole is broad and is in close contact with the corresponding suprarenal gland
- The lower pole



## TWO SURFACES



The anterior surface is said to be irregular and the posterior surface flat, but it is often difficult to recognize the anterior and posterior aspects of the kidney by looking at the surfaces



## TWO BORDERS



- The Lateral Border is Convex
- The Meddial Border is Concave
- Its Middle part shows a depression the Hilus or Hilum



## BLOOD SUPPLY



Abdominal aorta at L2 level



Renal artery



5 segmental arteries



Each segmental artery



Lobar artery



Interlobar artery



↓  
Arcuate artery  
↓  
Interlobular artery  
↓  
Afferent arteriole  
↓  
Glomerulus  
↓  
Efferent arteriole



Peritubular plexus



Interlobular vein



Lobar vein



Segmental vein



5 Segmental vein



Renal vein



Inferior vena cava





## LYMPHATIC DRAINAGE



The lymphatics of the kidney drain into the lateral aortic nodes located at the level of origin of the renal arteries





## NERVE SUPPLY



- The kidney is supplied by the renal plexus, an off shoot of the coeliac plexus
- It contains sympathetic



## ASSESSMENT



- What is the Location of Kidney ?
- What is the Blood supply of Kidney ?