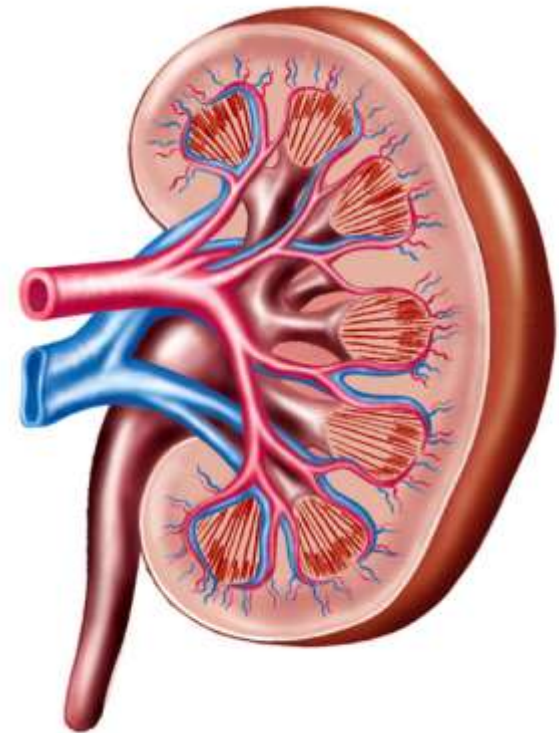


# THE URINARY SYSTEM

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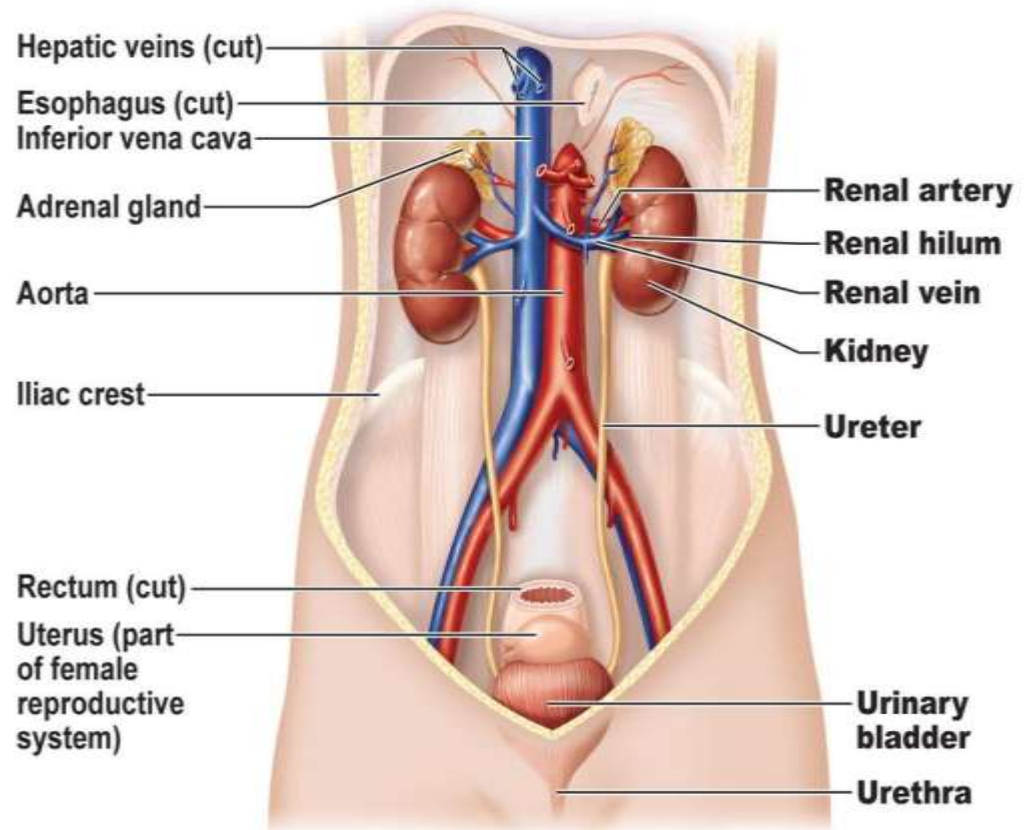
# Functions of the Urinary System

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- Elimination of waste products
  - Nitrogenous wastes
  - Toxins
  - Drugs
- Regulate aspects of homeostasis
  - Water balance
  - Electrolytes
  - pH balance
  - Blood pressure
  - RBC production
  - Activation of vit.D

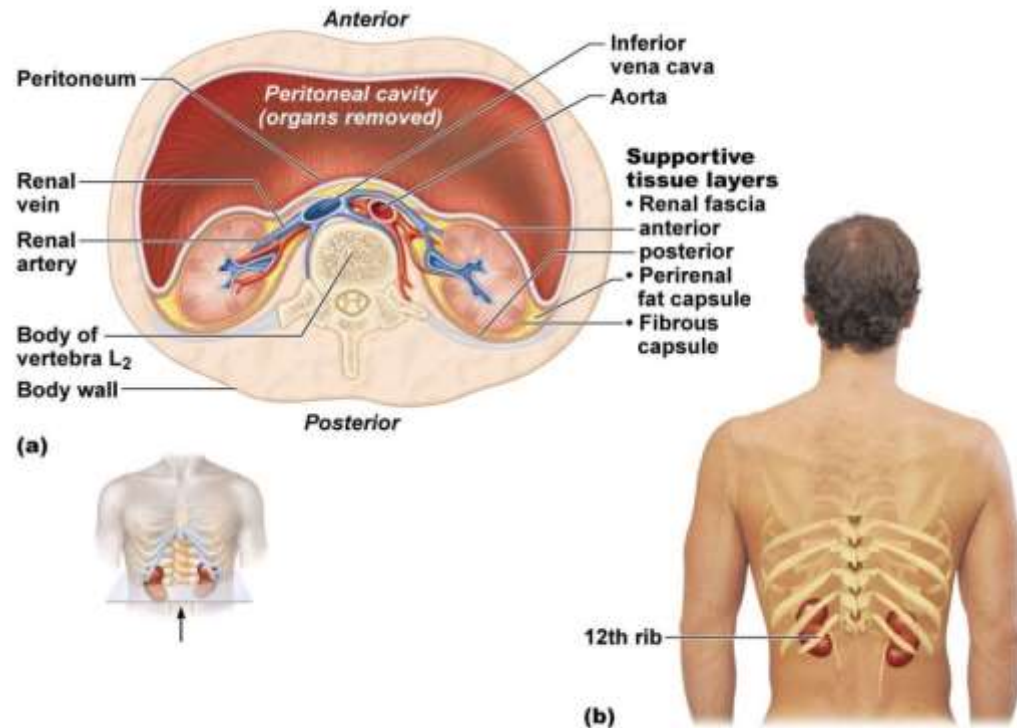
# Basic Gross Anatomy

- Two kidneys
- Two ureters
- Urinary bladder
- Urethra



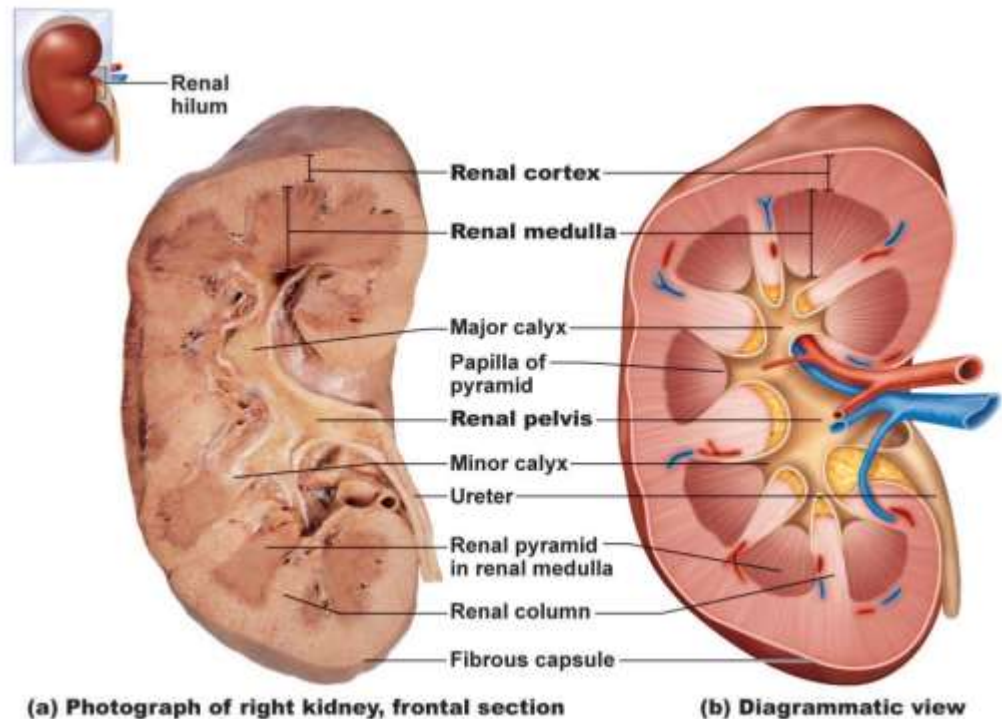
# External Anatomy of the Kidneys

- Within the muscular wall of the back between T12-L3.
- Connective tissue layers:
  - Renal capsule
  - Adipose capsule
  - Renal fascia

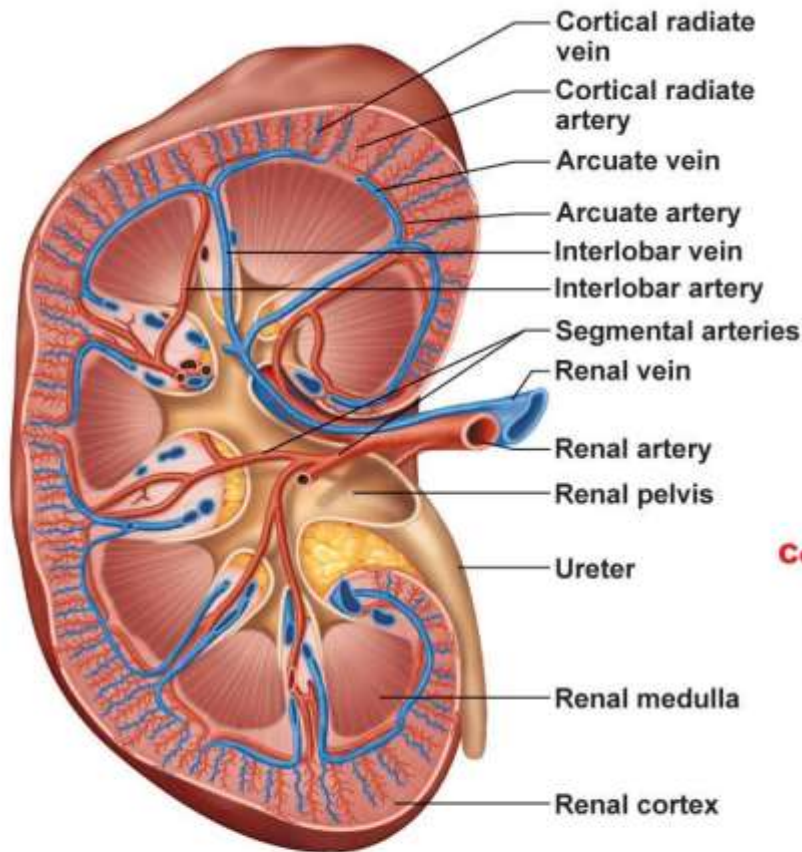


# Internal Anatomy of the Kidneys

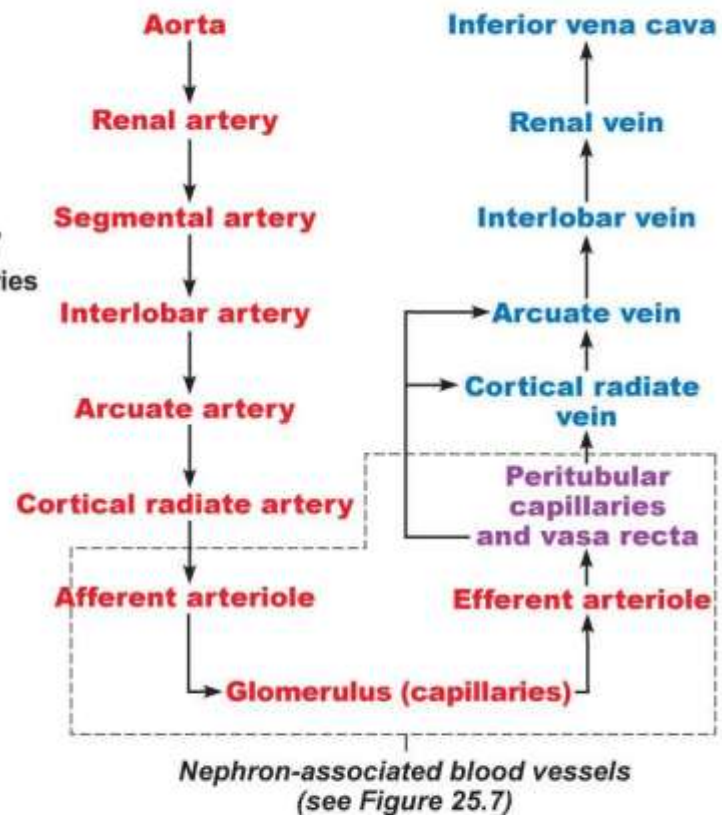
- Renal Cortex
- Renal Medulla
  - Renal pyramids
  - Renal papillae
  - Renal columns
- Renal Pelvis
  - With major calyces and minor calyces



# Blood Supply of the Kidney



(a) Frontal section illustrating major blood vessels



(b) Path of blood flow through renal blood vessels

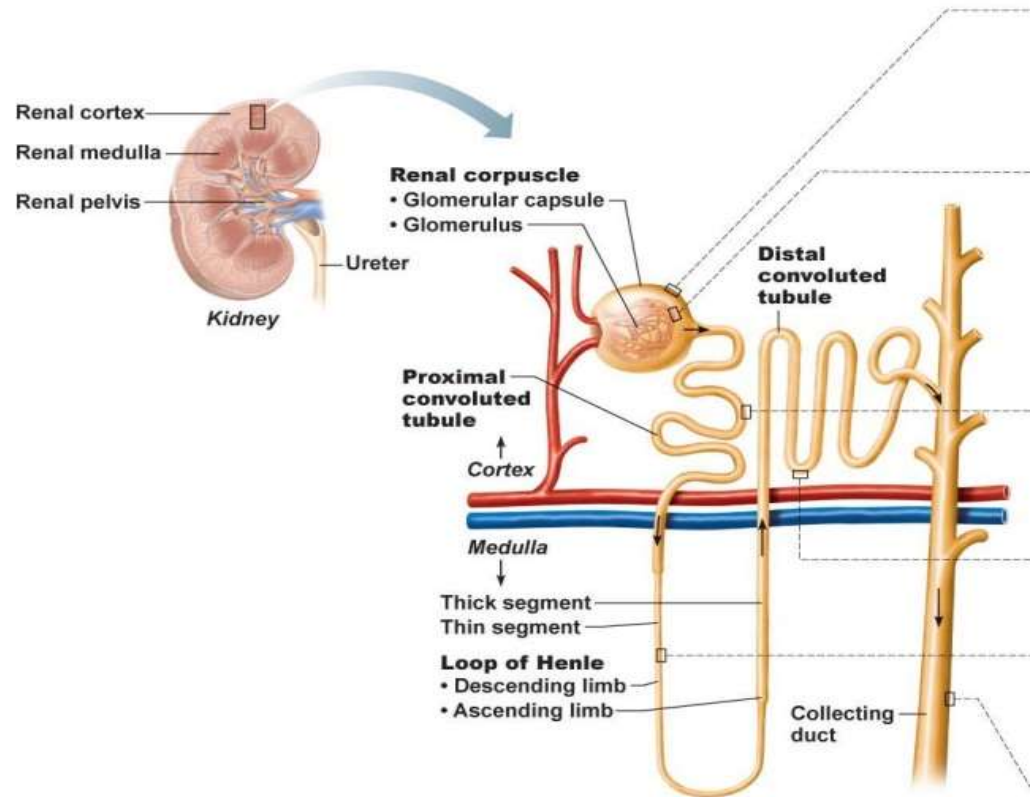
# Nephron Anatomy

## ■ Renal Corpuscle

- Glomerulus
- Bowman's capsule

## ■ Renal Tubules

- Proximal convoluted tubule (PCT)
- Loop of Henle
- Distal convoluted tubule (DCT)



# Glomerulus

- A specialized capillary bed
- Attached to arterioles on both sides (maintains high pressure)
  - Large afferent arteriole
  - Narrow efferent arteriole
- The glomerulus sits within a glomerular capsule (the first part of the renal tubule)

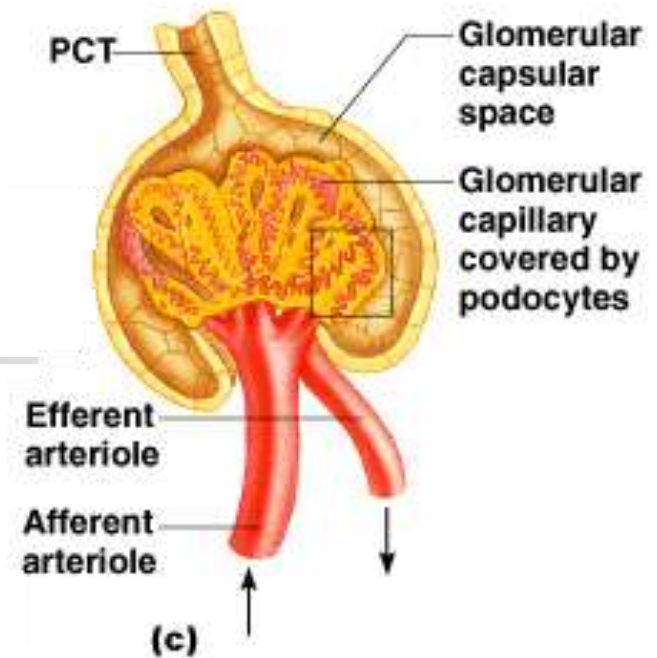


Figure 15.3c



# Renal Tubules

