URINARY SYSTEM
KIDNEY
Renal capsule

Outer layer of kidney
Renal cortex

Superficial reddish area
Renal medulla

Deep darker area containing the pyramids and columns
Renal column

Area between the pyramids
Renal pyramid
Minor calyx

Each kidney contains 8-18
Major calyx

Each kidney contains 2-3
Renal pelvis
Renal hilum
Ureter
Bladder
trigone

Contains the 2 ureteral openings
Detrusor muscle
Transitional epithelium
Urethra
Prostatic urethra

Portion of the urethra that passes through the prostate
Membranous urethra

Intermediate and shortest section of the male urethra
Penile urethra

Portion of the urethra that passes through the penis
Internal urethral sphincter
External urethral sphincter
RENAL BLOOD SUPPLY
Renal artery
Segmental artery

Renal artery divides and each segmental artery supplies one renal region
Interlobar artery

Blood vessels that pass through the columns between the pyramids
Arcuate artery

Blood vessels that form an arc between the cortex and the medulla
Interlobular artery

Branch from arcuate arteries to enter the cortex
Afferent arteriole

Branches from interlobular arteries and is where blood enters glomerulus
Glomerulus
Efferent arteriole
Blood exits glomerulus
Peritubular capillaries

efferent arterioles divide to surround portions of the nephron in the cortex
Vasa recta

Some efferent arterioles have long loop-shaped capillaries that surround portions of the nephron in the medulla.
Interlobular vein

Peritubular capillaries reunite to form interlobular veins

Interlobular veins also receive blood from the vasa recta
Arcuate vein

Receives blood from the interlobular veins
Interlobar vein

Pass through the renal columns and receives blood from arcuate veins.
Segmental vein

Receives blood from the interlobar veins
Renal vein
Nephron

Contains one renal corpuscle and its renal tubule
Renal corpuscle

Lies in the cortex and contains:
- Glomerulus
- Bowman’s Capsule
Glomerulus
Glomerular (Bowman’s) capsule

Double walled epithelial cup that surrounds the glomerulus
Visceral layer of Bowman’s capsule

Nucleus of podocyte
Proximal convoluted tubule (PCT)

Portion of renal tubule that lies in the cortex and is attached to the glomerulus and coiled.
Loop of Henle

Also called a nephron loop

Extends into the medulla, makes a hairpin turn, and returns to the cortex
Descending limb

Portion of the nephron loop that descends from the PCT into the medulla
Ascending limb

Portion of the nephron loop that ascends from medulla and returns to the cortex, attaching to the DCT
Distal convoluted tubule (DCT)

Portion of renal tubule that lies in the cortex and is attached to the collecting duct and coiled.
Collecting tubule (duct)

Several DCTs drain into one collecting duct
Juxtaglomerular apparatus (JGA)

Regulates arterial blood pressure and the rate of blood filtration by the kidneys.
Macula densa

Tall crowded cells on the wall of the distal convoluted tubule that monitor ion concentration of the fluid passing through.
Juxtaglomerular cells

In the wall of the afferent arteriole

These are modified smooth muscle fibers
Types of nephrons
cortical  80-85% of nephrons

Nephrons that have a short loop of Henle and glomeruli in the superficial region of the cortex

Cortex  Medulla
Nephrons that have glomeruli in the cortex close to the medulla and a long loop of Henle that spans the medulla.