Chapter 20

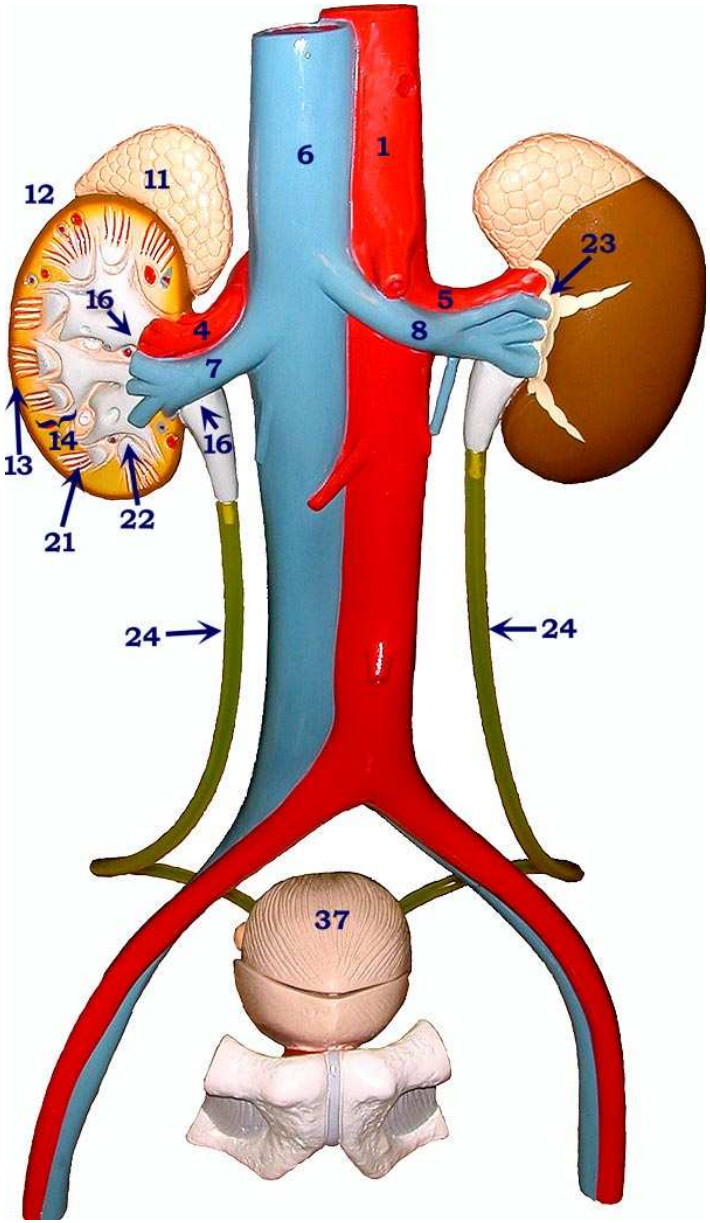
Excretory System

Excretory System – Structure & Function

A. The body system that collects and removes the waste products (urea, salts, uric acids etc.) produced by the cells of the body

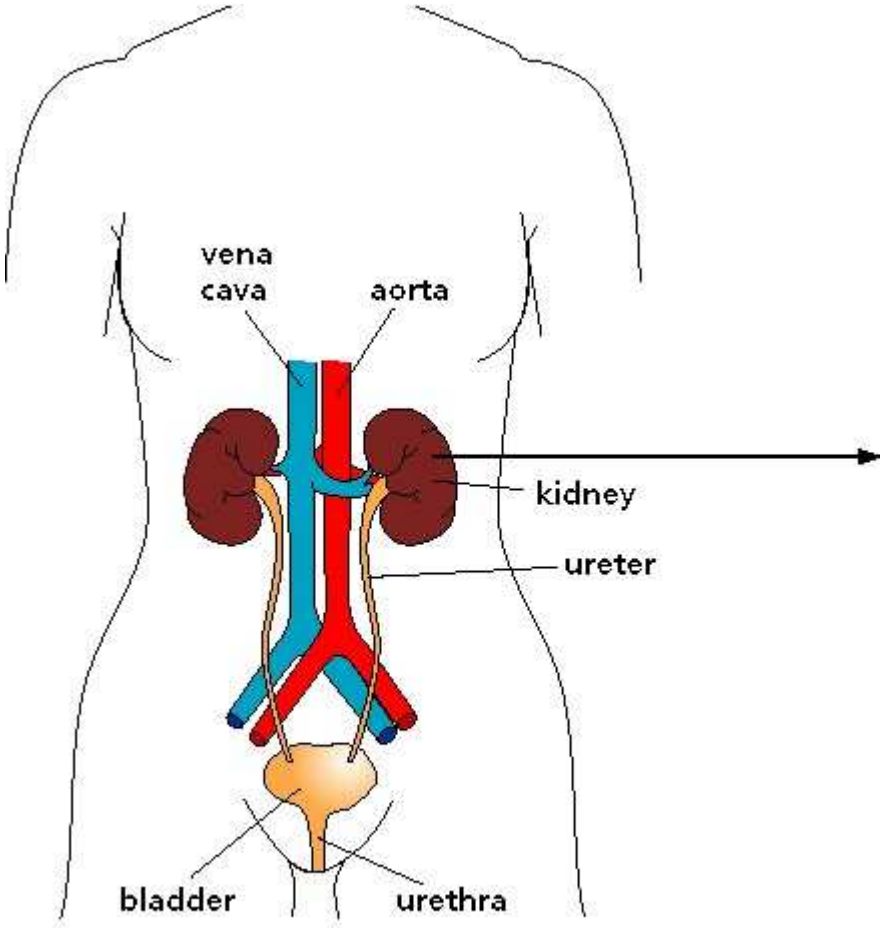
B. Organs/structures involved include: the kidneys, ureter, bladder, urethra

C. Secondary Organs include Skin, Sweat Glands, Liver and the Lungs



Kidney, Ureter, Bladder & Urethra

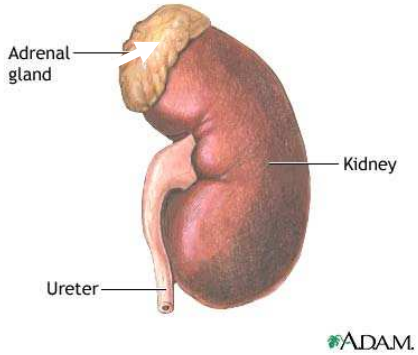
- Kidney –
  - Major filtering organ of the excretory system. Filters blood to remove toxic cellular wastes
  - Located in the lower back region of the body and is enclosed by connective tissue called a capsule.
  - Produces urine
- Ureter
  - Tube (one from each kidney that drains urine from kidneys to the bladder
- Bladder
  - Strong muscular organ that stores the urine until released from the body through the urethra.
- Urethra
  - connects and passes stored urine out of the body.

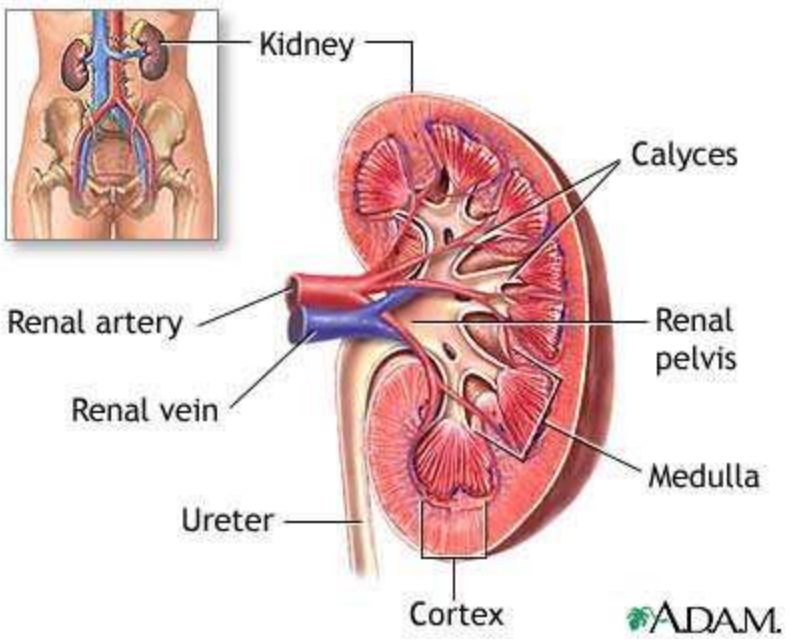


Kidney Structure & Function

- Cortex:
  - The outer portion of the kidney that contain the basic functional unit (nephrons).
  - Nephrons are small independently filtering units of the kidney.
  - About million nephrons in each kidney
- Medulla
  - The inner portion of the kidney
- **Pelvis**
  - The central area of the kidney. Site where the collecting tubules combine to form the ureter

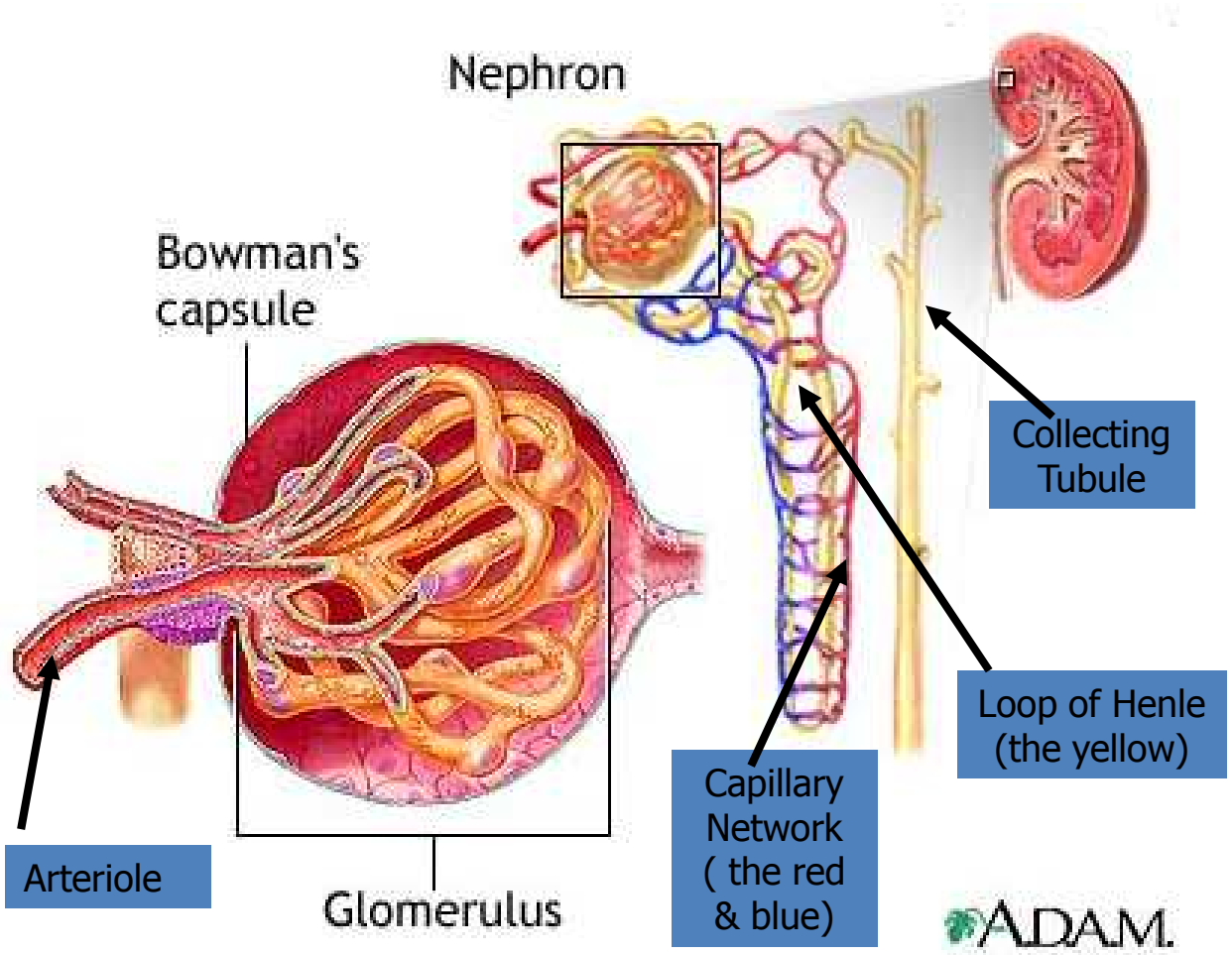
Adrenal Gland – Endocrine gland secretes adrenaline (not part of the excretory system)





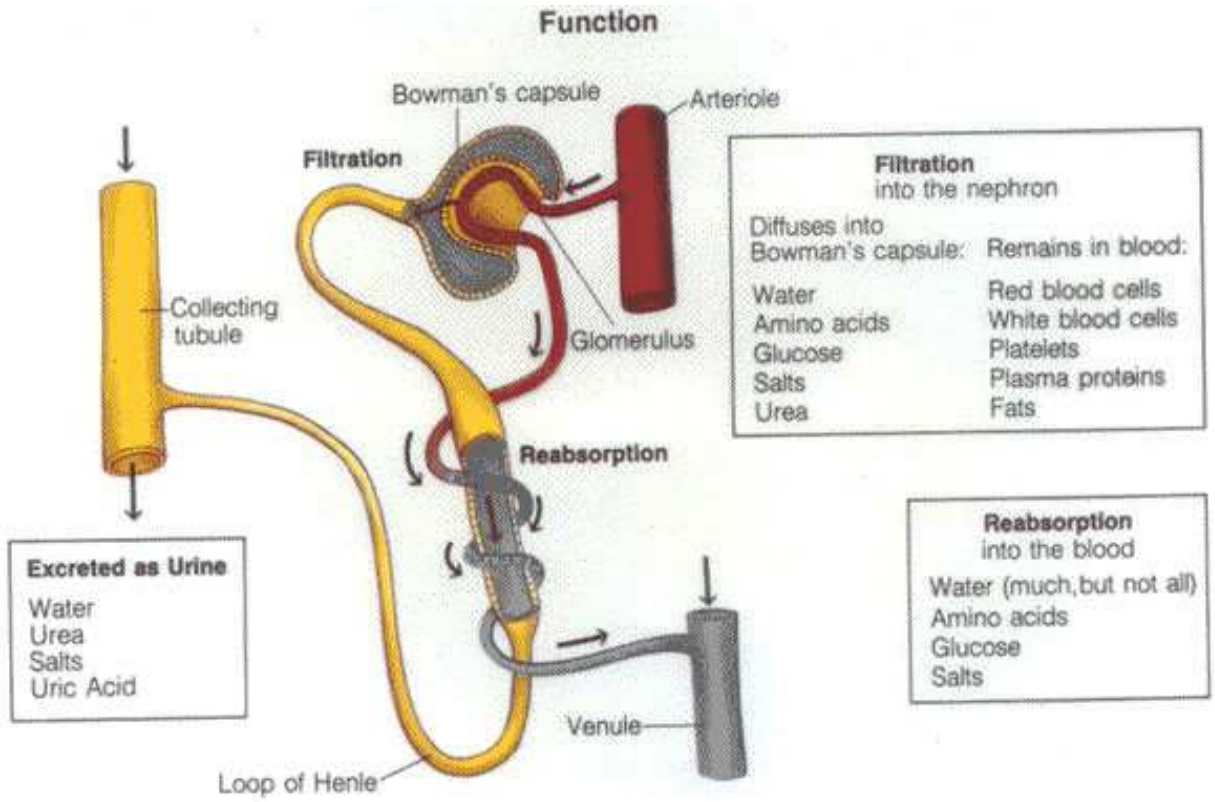
Nephron: Structure

- Nephron – basic structure of the kidney. complex units consisting of arterioles, venules, capillaries
- Located in the Renal Cortex
- Structures include: arterioles Glomerulus, Bowman's Capsule, Loop of Henle, Collecting Tubules, Capillaries and venules



Nephron - Function

- High Blood Pressure in the arteriole supplied to the Glomerulus
- Glomerulus "leaks" both good & bad materials into
- Bowman's Capsule
  - Good – Water, Amino Acids, glucose
  - Bad – Urea, salts, excess water, Uric Acid
- Loop of Henle
  - Extends down into the renal medulla
  - Materials drain down into loop
  - Dense capillary network surround the loop and reabsorbs "good" stuff.
  - "Bad" stuff continues down & around loop
  - Dumps into the collecting tubule



- Collecting tubules come together & drain the newly formed urine into the ureter.
- Capillary network takes reabsorbed materials back to the venules and recirculates back to the body

“Need-to-Knows”

B Aorta

A Vena Cava

C Adrenal Gland

E Bladder

D Ureter

F Urethra

H Renal Pelvis

G Renal Medulla

I Renal Cortex

K Arteriole

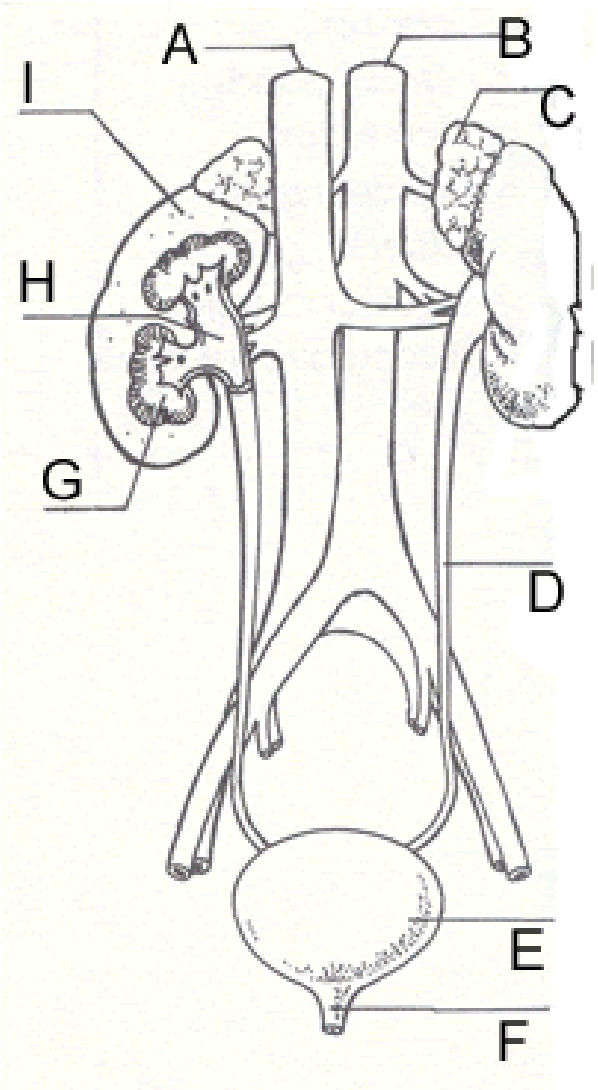
O Collecting Tubule

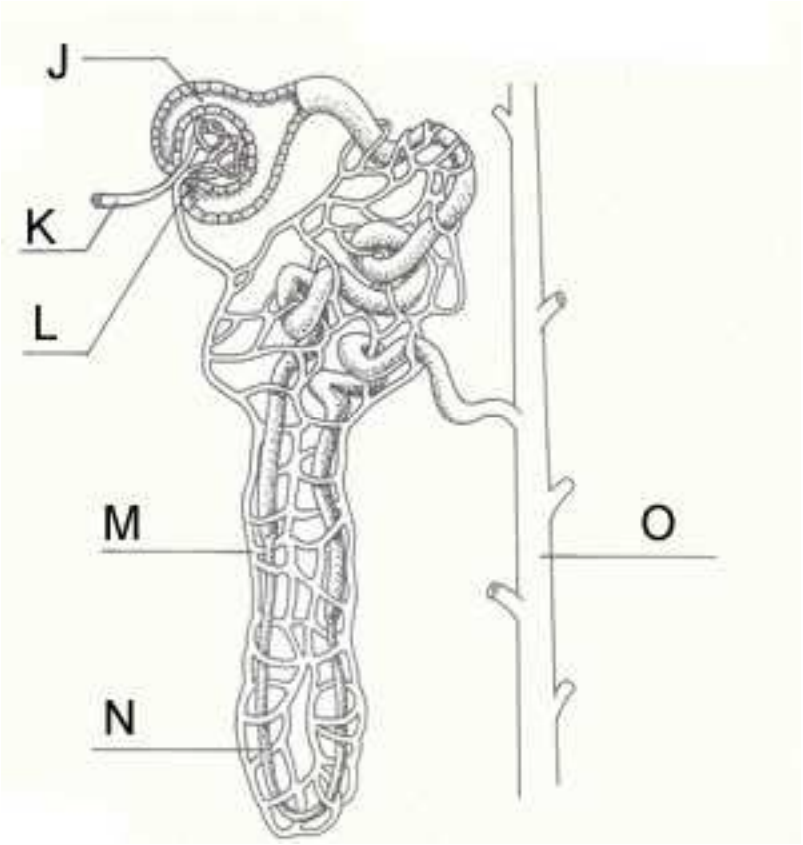
M Capillary Network

N Loop of Henle

J Bowman’s Capsule

L Glomerulus





That’s All Folks!!

Now that wasn’t so bad now was it?