HOMEOSTASIS

Urinary System in Man

LEARNING OUTCOMES

Students will be able to:

1. identify the different organs of the urinary system.
2. relate the structure of kidney with its function.
3. state that the nephron is the excretory unit of kidney.
4. locate the different parts of the nephron and relate them with their function.
5. state that the main role of kidney is urine formation.
6. describe that urine formation involves three processes:
   ultra-filtration, selective reabsorption and secretion.
7. discuss the role of kidney in osmoregulation.
8. explain that kidneys control blood composition.

URINARY SYSTEM

Excretion

EGESTION.

This is the process by which nitrogenous waste products and toxic materials are removed from the body of an organism.

Parts of the urinary system in man

- Kidneys
- Ureters
- Urinary bladder
- Urethra

Nephron.

major calyx

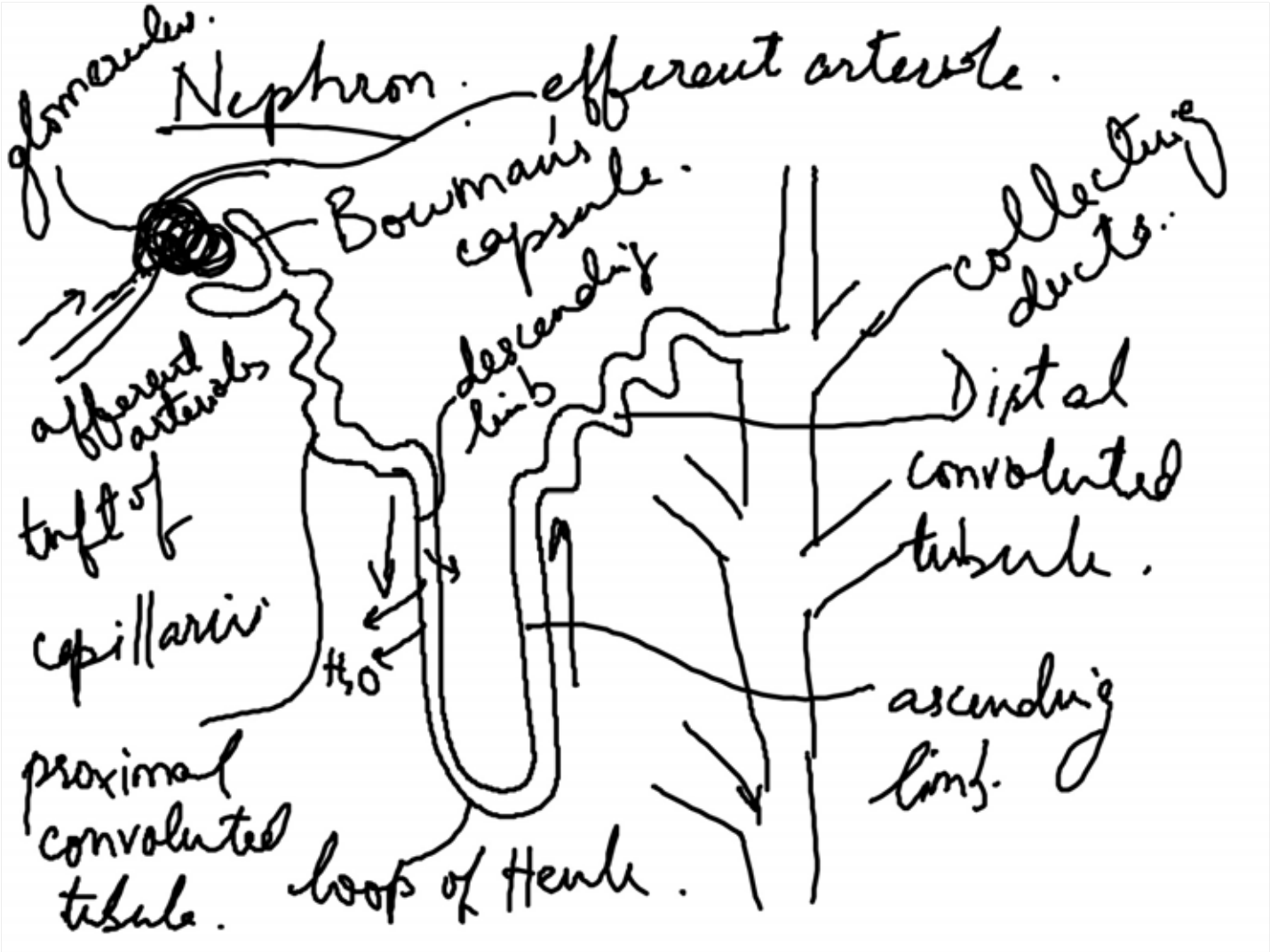
minor calyx.

Ultrafiltration

Very fine and very small molecules are filtered off from the blood. The filtration takes place under high blood pressure.

Selective reabsorption

A large amount of filtrate is recieved by the renal capsule but over 99 % of it is reabsorbed from the first convoluted tubule and loop of Henle, mainly by osmosis and active transport


glomerulus.
Nephron.
efferent arteriole.
Bowman's capsule.
collecting duct.
descending limb
afferent arteriole
Distal convoluted tubule.
tuft of capillaries
H_2O
ascending limb.
proximal convoluted tubule.
loop of Henle.

Secretion

Tubular secretion is the transfer of materials from peritubular capillaries to renal tubular lumen. Tubular secretion is caused mainly by active transport.

Usually only a few substances are secreted. These substances are present in great excess, or are natural poisons.

Many drugs are eliminated by tubular secretion.

Structure of the kidney

Function of the kidneys

Function of the nephron

Osmoregulation

Effect of ADH

Multiple Choice Question

1. Urine leaves the body through the

A. glomerulus.
B. loop of henule.
C. ureter.
D. urethra.

2. Selective reabsorption takes place in the

A. glomerulus.
B. renal tubules.
C. small inetestine.
D. Bowman's capsule.

3. Antidiuretic hormone (ADH) acts on the

A. convoluted tubules.
B. Bowman's capsule.
C. ureter.
D. renal artery.