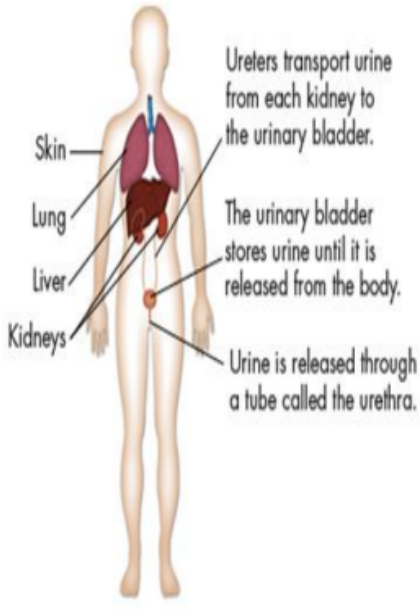
Name:	Class/ Section: 12 /	Date:
Chapter: 8 Human Body	**Lesson**: 30.4 Excretory sys	**Textbook p.:**
CW		____/ 26

30.4 The Excretory System

Structures of the Excretory System

Excretion is the process by which metabolic wastes are eliminated from the body. Cells produce wastes such as salts, carbon dioxide, and ammonia. For homeostasis to be maintained, these wastes need to be removed from the body.

Organs of the Excretory System	
Organ	**Function**
Skin	Excretes excess water, salts, and a small amount of urea in sweat.
Lungs	Excrete carbon dioxide and water vapor
Liver	Converts dangerous nitrogen wastes into urea
Kidneys	They remove excess water, urea, and metabolic wastes from the blood
Ureter	Transport urine from kidneys to the bladder
Urinary bladder	Stores urine
Urethra	Canal through which urine leaves the body



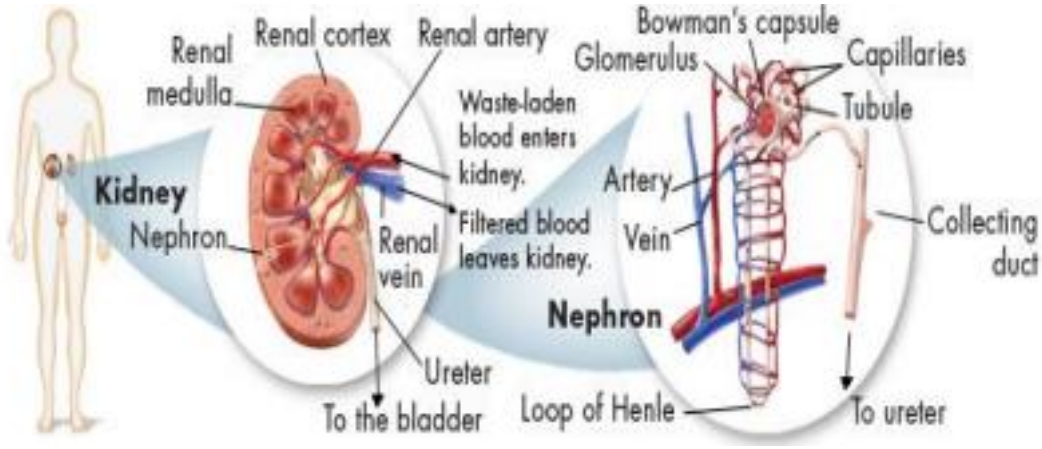
Excretion in the Kidney

The kidneys remove excess water, minerals, and other waste products from the blood. The cleansed blood returns to circulation.

kidney has nearly a million processing units called **nephrons** where Blood purification takes place in two distinct processes: **filtration** and **reabsorption**.

1) Filtration is the passage of a fluid or gas through a filter to remove wastes. The filtration of blood in the nephron takes place in the **glomerulus**, a small, dense network of capillaries. Each glomerulus is encased by a cuplike structure called **Bowman's capsule**. Pressure in the capillaries forces fluids and wastes from the blood into Bowman's capsule. This fluid is called filtrate.

2) **Reabsorption** is process by which water and dissolved substances are taken back into the blood Most of the material , including salts, vitamins, amino acids, fats, and glucose, are removed from the filtrate by active transport and reabsorbed by the capillaries. Water follows these materials by osmosis mostly in **loop of Henle** and fluid that remains in the tubule is called **urine.**



The Kidneys and Homeostasis

- The kidneys respond directly to the composition of the blood (maintain blood pH and regulate H_2O content) .
- They are also influenced by the endocrine system.
- Disruption of proper kidney function can lead to serious health problems.

Examples:

1) Excess salt levels in your blood the kidneys will respond by returning less salt to your blood during reabsorption.

2) Water level:

If you have not consumed enough fluids (less water in blood) , your pituitary gland releases **antidiuretic hormone** (ADH) into your blood.

ADH causes the kidneys to reabsorb more water from the nephron tubules and to excrete less water in the urine.

If the blood contains excess water, ADH secretion stops and more water is excreted. The **color** of your urine is an indicator of how hydrated you are.

Kidney Disorders		
Kidney stones	Problem	**Substances such as calcium, magnesium, or uric acid salts in the urine can crystallize and form kidney stones. When stones block a ureter, they cause pain.**
	Treatment	Can be treated using ultrasound waves, which pulverize the stones into smaller fragments that are eliminated in the urine
Kidney damage		**Hypertension and diabetes damage tubules over time.**
Kidney failure	Problem	**When kidneys can no longer cleanse the blood and maintain homeostasis**
	Treatment	Patients should do dialysis (blood cleansing) or kidney transplant.