Name _____ Class _____
Date _____ Excretory System Wkst

30.4 The Excretory System

Lesson Objectives

- Describe the structures of the excretory system and explain their functions.
- Explain how the kidneys clean the blood.
- Describe how the kidneys maintain homeostasis.

Lesson Summary

Structures of the Excretory System

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

- The skin excretes excess water, salts, and a small amount of urea in sweat.
- The lungs excrete carbon dioxide and water vapor.
- The liver converts potentially dangerous nitrogen wastes to urea.
- The kidneys are the major organs of excretion. They remove excess water, urea, and metabolic wastes from the blood. **Ureters** carry urine from the kidneys to the **urinary bladder**, where it is stored until it leaves the body through the **urethra**.

Excretion and the Kidneys

The kidneys remove excess water, minerals, and other waste products from the blood. The cleansed blood returns to circulation. Each kidney has nearly a million processing units called **nephrons**. Filtration and reabsorption occur in the nephrons.

- **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.
- Most of the material that enters Bowman's capsule is returned to circulation. The process by which water and dissolved substances are taken back into the blood is called **reabsorption**.
- A section of the nephron tubule, called the **loop of Henle**, conserves water and minimizes the volume of filtrate. The fluid that remains in the tubule is called urine.

The Kidneys and Homeostasis

The kidneys remove wastes, maintain blood pH, and regulate the water content of the blood.

- The activity of the kidneys is controlled in part by the composition of blood. For example, if blood glucose levels rise well above normal, the kidneys excrete glucose into the urine.
- Disruption of kidney function can lead to health issues such as kidney stones and serious health issues such as kidney damage, and kidney failure.
  - Kidney stones occur when minerals or uric acid salts crystallize and obstruct a ureter.
  - Kidney damage is often caused by high blood pressure or diabetes.
  - When a patient's kidneys can no longer maintain homeostasis, the patient is said to be in kidney failure.

Structures of the Excretory System

1. Why does the body need an excretory system?

_____

_____

_____

2. What is excretion?

_____

_____

3. What waste compounds are produced by every cell in the body?

_____

4. What organs are included in the excretory system?

_____

_____

5. Complete the table about the excretory system.

Organs of the Excretory System	
Organ	**Function**
Skin	
Lungs	
	Converts dangerous nitrogen wastes into urea
Kidneys	
	Transport urine from kidneys to the bladder
	Stores urine
Urethra	

14. How does dialysis work? _____

_____