CHAPTER OVERVIEW

Section 13: Excretion

Learning Objectives

After completing this lesson, you will be able to:

- Define excretion.
- Identify the primary organ systems involved in excretion.
- Describe the basic mechanisms of excretion within each primary organ system involved.

In this section...

Topics include:

Section 13: Key Points

What We've Covered

This section made the following main points:

- Excretion, as used in ToxTutor, pertains to the elimination of a xenobiotic and its metabolites by specific excretory organs.
- The primary organ systems involved in excretion are the:
  - Urinary system, which involves:
    1. Filtration in the glomerulus.
    2. Secretion in the proximal tubule section of the nephron to transport certain molecules out of the blood and into the urine.
    3. Reabsorption in the proximal convoluted tubule of the nephron to reenter nearly all of the water, glucose, potassium, and amino acids lost during filtration back into the blood.
  - Gastrointestinal system, which occurs from two processes:
    1. Biliary excretion — generally active secretion by the liver into the bile and then into the intestinal tract, where it can be eliminated in the feces or reabsorbed.
    2. Intestinal excretion — an important elimination route only for xenobiotics that have slow biotransformation or slow urinary or biliary excretion.
  - Respiratory system, which is important for xenobiotics and metabolites that exist in a gaseous phase in the blood:
    - Excreted by passive diffusion from the blood into the alveolus.
- Minor routes of excretion occur including breast milk, sweat, saliva, tears, and semen.