Module WB2715

The Science of Pharmacology-Pharmacokinetics

Objectives

- Understand the fundamental principles of pharmacology, including the study of drug actions and the body's reactions to drugs, both desired and adverse effects
- Identify the various routes through which drugs can be administered and the implications of each route on drug absorption and effectiveness
- Describe the mechanisms of drug metabolism, including phase I and phase II reactions and the factors influencing these processes
- Discuss the primary routes of drug excretion, including renal, hepatic/biliary, and pulmonary pathways
- Review the mathematical principles of pharmacokinetics, including first-order and zero-order kinetics, drug half-life, drug clearance, and steady state concentration

Content Outline

1. Introduction to Pharmacology
   A. Definition and scope of pharmacology
   B. Historical background and significance
   C. Overview of drug actions and body reactions

2. Routes of Drug Administration
   A. Oral administration
   B. Parental administration
   C. Other routes

3. Pharmacokinetics
   A. Absorption
   B. Distribution
   C. Metabolism
   D. Excretion

4. Drug Metabolism
   A. Phase I Reactions
   B. Phase II Reactions
   C. Factors affecting drug metabolism

5. Excretion of Drugs and Metabolites
   A. Renal System
   B. Hepatobiliary Excretion

6. Mathematics of Pharmacokinetics
   A. First-order kinetics
   B. Zero-order kinetics

Reading Material Resources- page 2

Module WB2715: The Science of Pharmacology-Pharmacokinetics is based on the resource listed below. A copy of the resource is included with the module.

Excerpt from Chapter 4, Pharmacology, Medical Sciences, Syndercombe, et al., Elsevier, 2025, pages 119-141