SNS COLLEGE OF PHARMACY AND HEALTH SCIENCES

Coimbatore -641035

COURSE NAME : PHARMACOLOGY (ER20-22 T)

YEAR : IIYEAR

TOPIC 1 : INTRODUCTION TO PHARMACLOGY

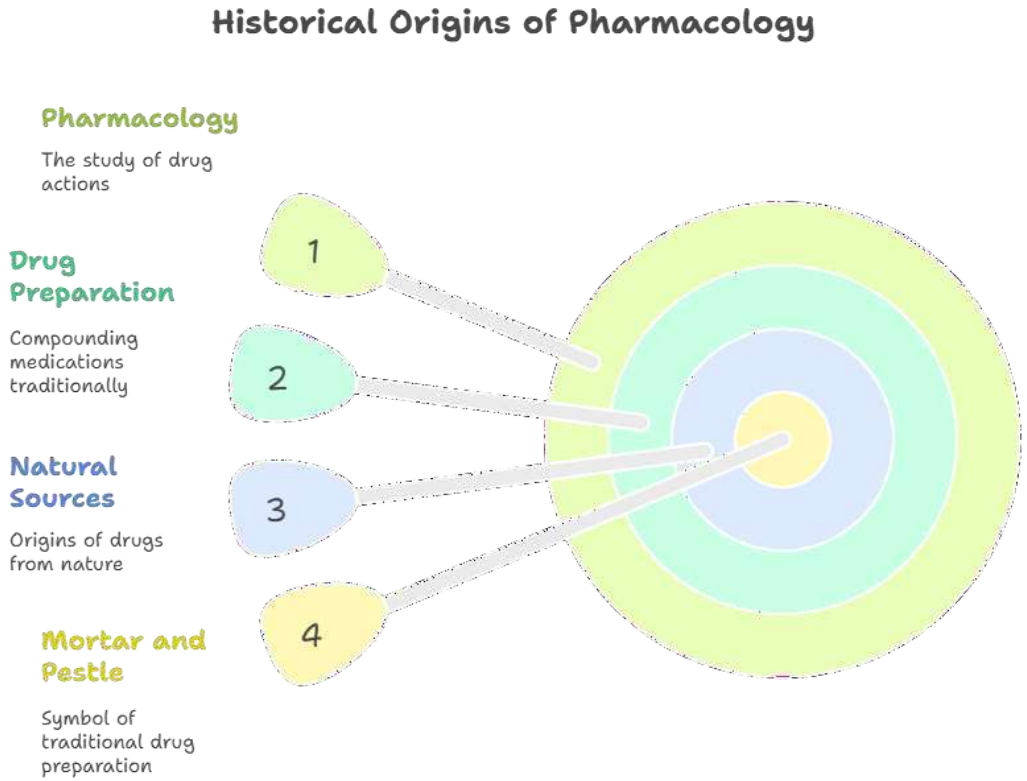
PHARMACOLOGY

Study of drugs and their effects on the body.

Derived from Greek: *pharmakon* (drug) and *logos* (study).

Two main branches:

Pharmacodynamics and Pharmacokinetics.

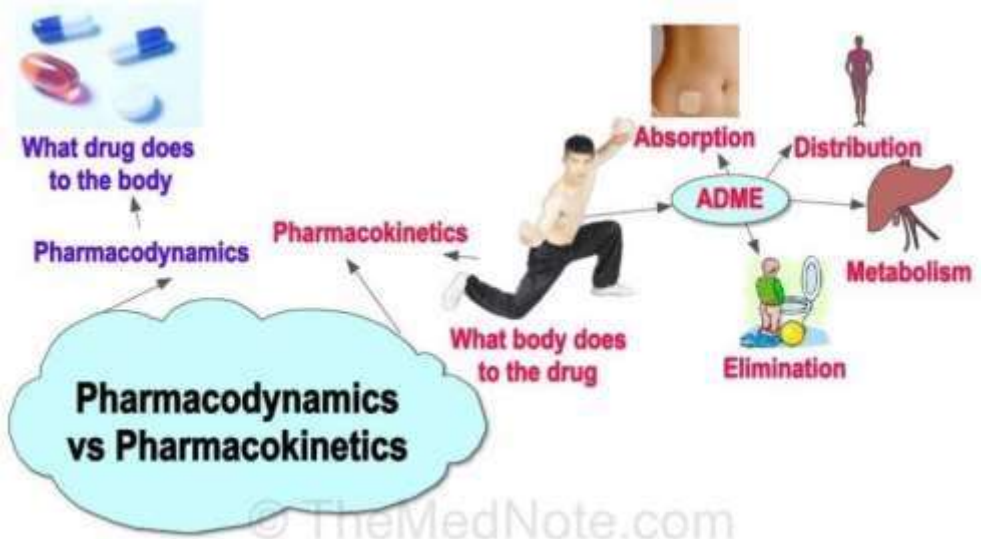


BRANCHES OF PHARMACOLOGY

Pharmacodynamics: What the drug does to the body.

Pharmacokinetics: What the body does to the drug.

Other areas: Clinical pharmacology, toxicology, pharmacognosy.

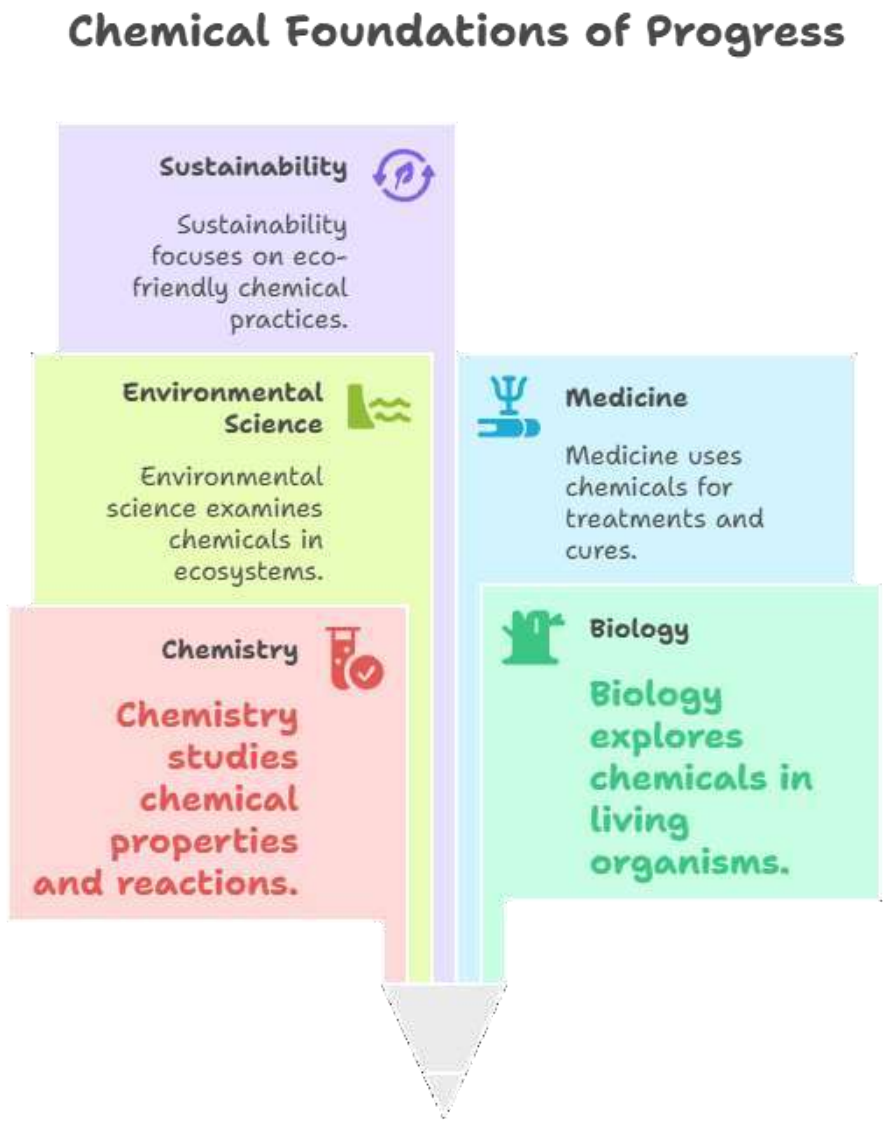


Key Terms to Know

- **Drug**: Substance used to diagnose, treat, or prevent disease.
- **Dose**: Amount of drug given at one time.
- **Efficacy**: Ability of a drug to produce desired effect.
- **Side Effect**: Unintended effect of a drug.

HOW ARE DRUGS CLASSIFIED

By chemical structure (e.g., penicillins).
By therapeutic use (e.g., analgesics for pain).
By body system affected (e.g., cardiovascular drugs).



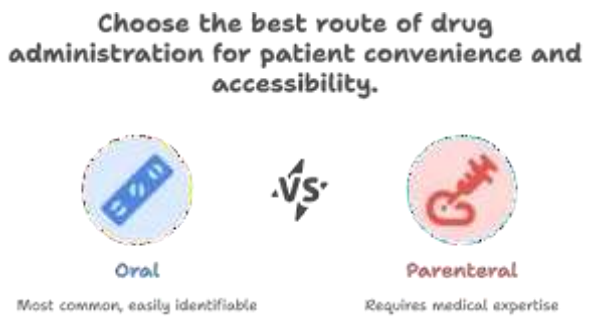
ROUTES OF DRUG ADMINISTRATION

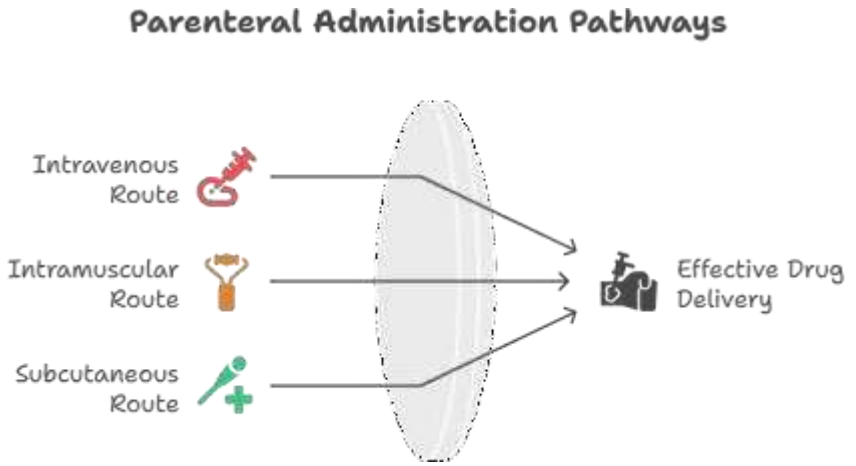
Oral: Swallowed (e.g., tablets, capsules).

Topical: Applied to skin or mucous membranes.

Parenteral: Injected (e.g., IV, IM).

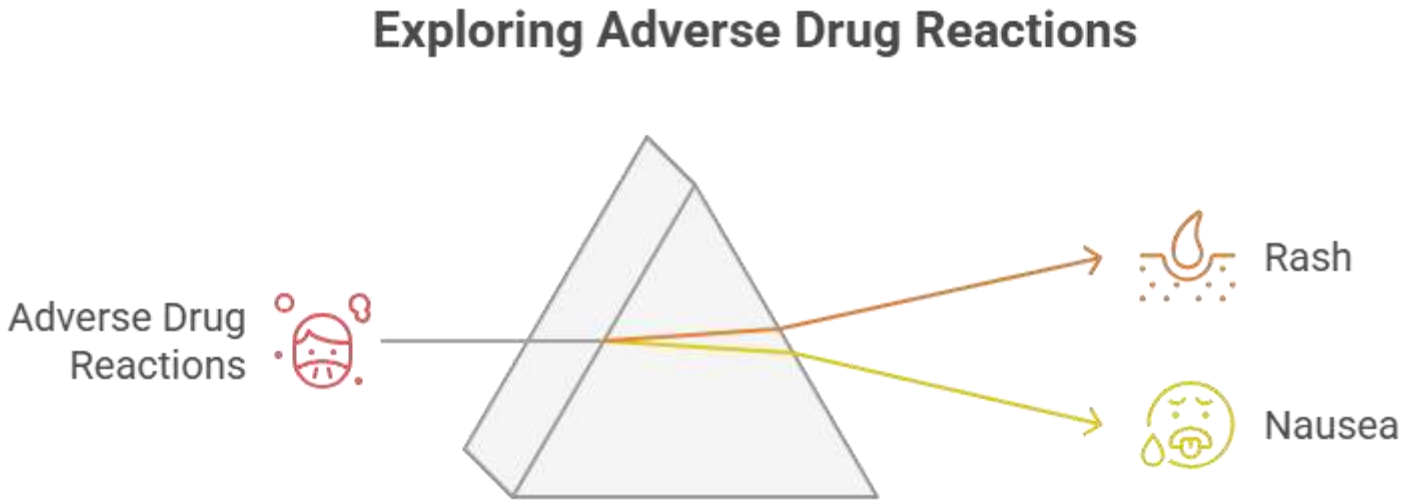
Inhalation: Breathed in (e.g., asthma inhalers).





TYPES OF DRUG EFFECTS

Therapeutic: Desired effect (e.g., lowering blood pressure).
Side Effects: Unwanted effects (e.g., nausea).
Toxic Effects: Harmful effects due to overdose.



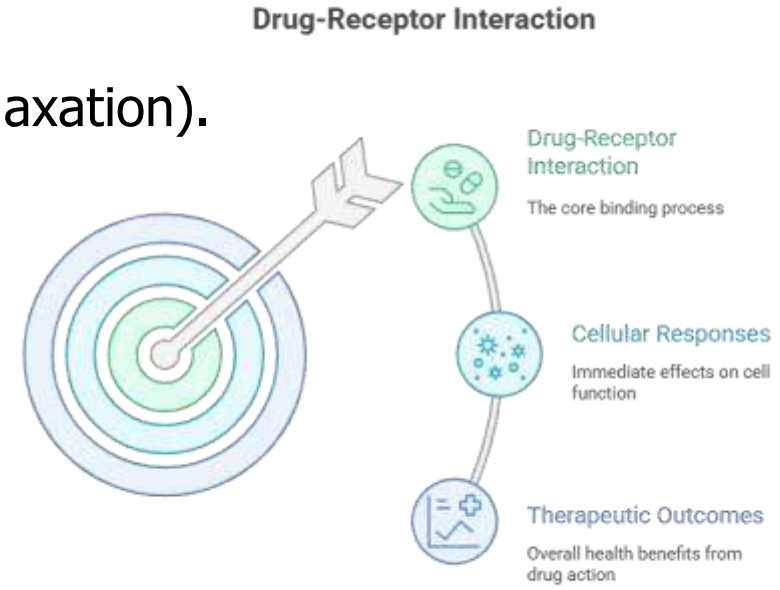
PHARMACODYNAMICS : WHAT DRUG DO

Study of drug effects on the body.
Focuses on mechanism of action and therapeutic effects.
Example: Paracetamol reduces pain by acting on the brain.

HOW DRUG WORKS: RECEPTOR

Drugs bind to specific receptors in the body. Receptors are like locks; drugs are the keys.

Binding triggers a response (e.g., pain relief, muscle relaxation).

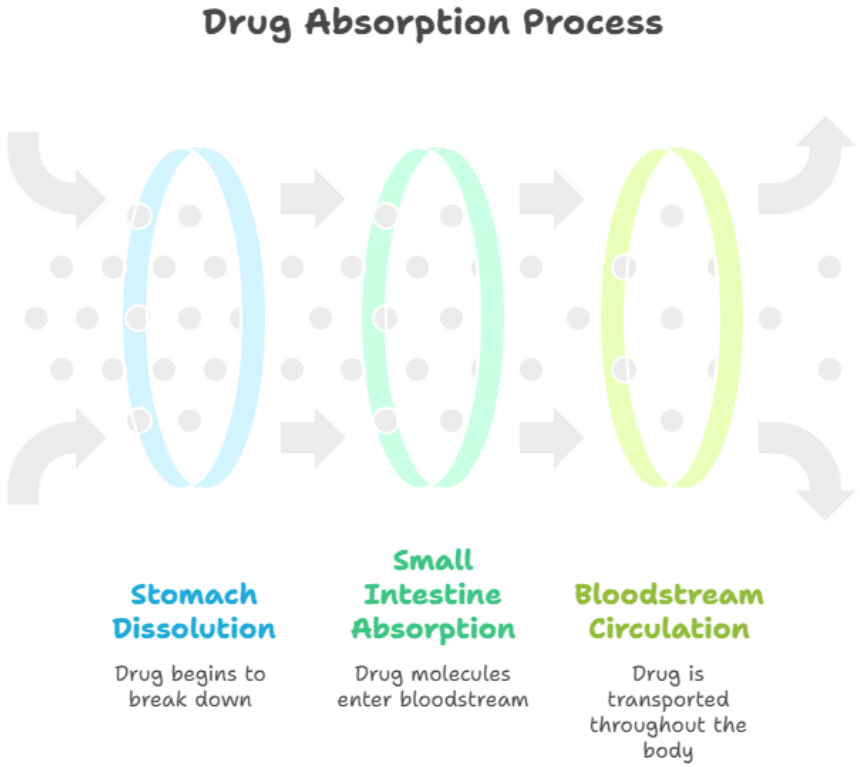


PHARMACOKINETICS : BODY'S ROLE

Study of how the body processes drugs.
Four main processes: Absorption, Distribution, Metabolism, Excretion (ADME).

ABSORPTION

Process of drug entering the bloodstream. Depends on route (e.g., oral drugs absorbed in stomach/intestines). Factors: Food, pH, drug formulation.



DISTRIBUTION

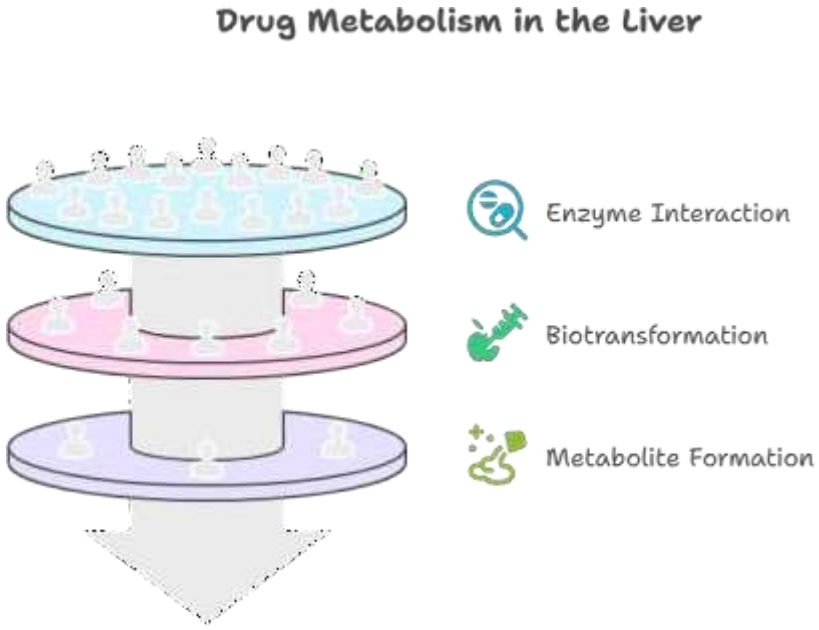
Movement of drug from blood to tissues/organs. Affected by blood flow and tissue barriers (e.g., brain barrier). Example: Antibiotics spread to infected tissues.

METABOLISM

Body breaks down drugs into inactive forms.

Mainly occurs in the liver (enzymes like cytochrome P450). Example:

Paracetamol is metabolized into non-toxic compounds.

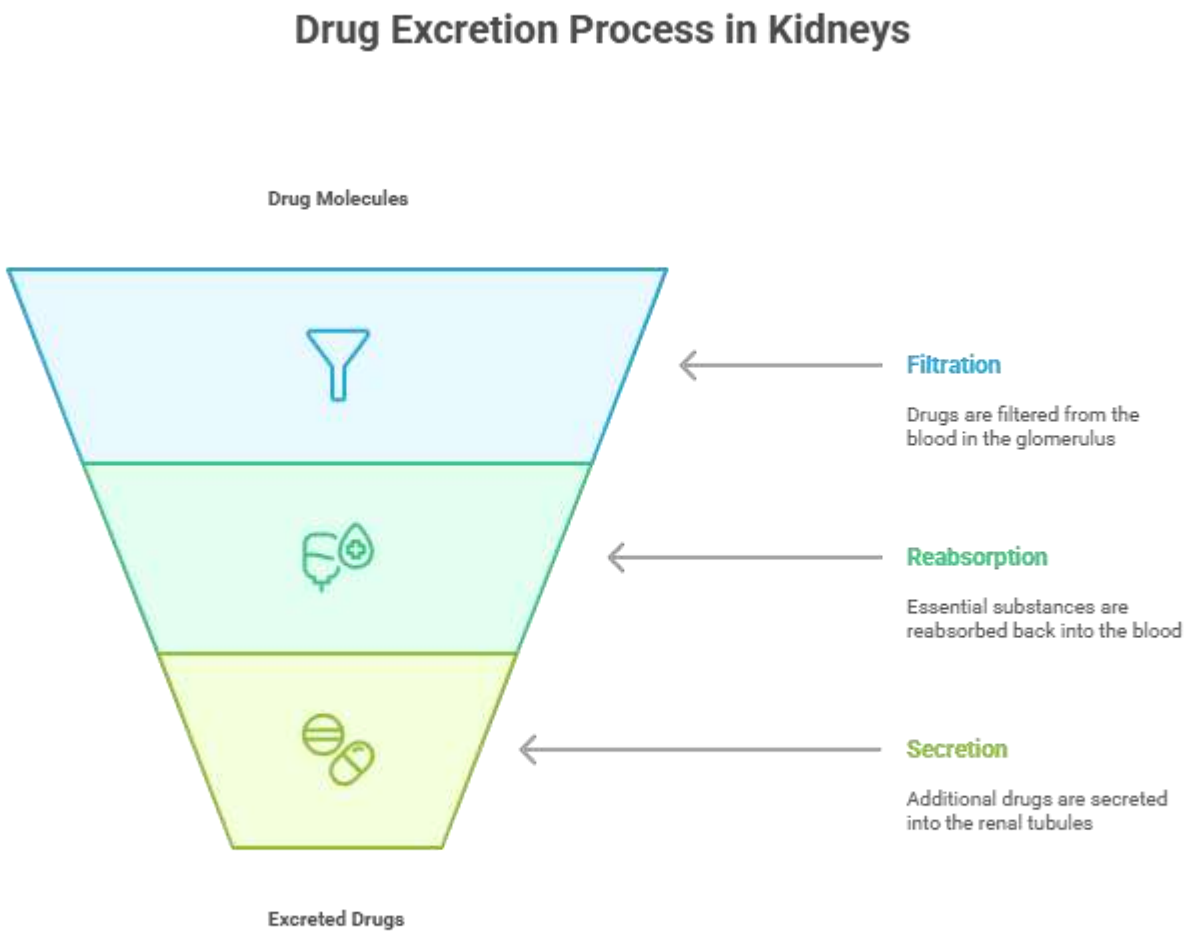


EXCRETION

Removal of drugs from the body.

Mainly via kidneys (urine).

Other routes: Lungs, sweat, bile.



DRUG HALF LIFE

Time taken for half the drug to be eliminated.

Helps determine dosing frequency.

Example: Ibuprofen half-life is 2 hours.

FACTORS AFFECTING DRUG ACTION

Age, weight, gender.
Disease state (e.g., liver or kidney issues).
Drug interactions (e.g., one drug blocks another).

DRUG INTERATION

Occur when one drug affects another.

Types: Synergistic (enhanced effect), antagonistic (reduced effect).

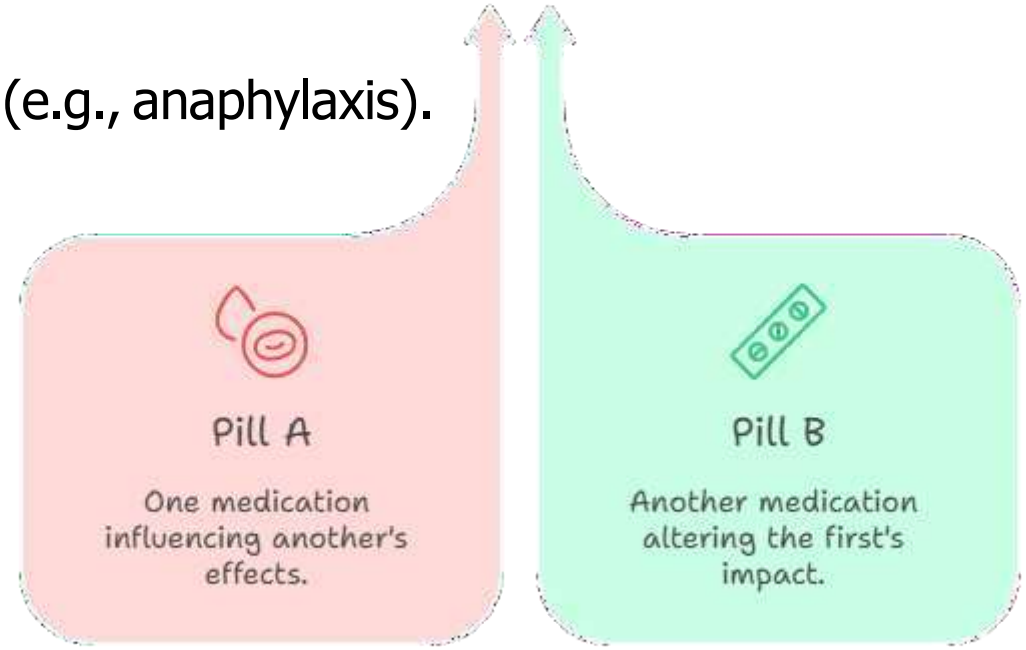
Example: Alcohol increases sedative effects of sleeping pills.

ADVERSE DRUG INTERACTION

Unwanted or harmful effects.

Range from mild (e.g., rash) to severe (e.g., anaphylaxis).

Pharmacists monitor and report ADRs.

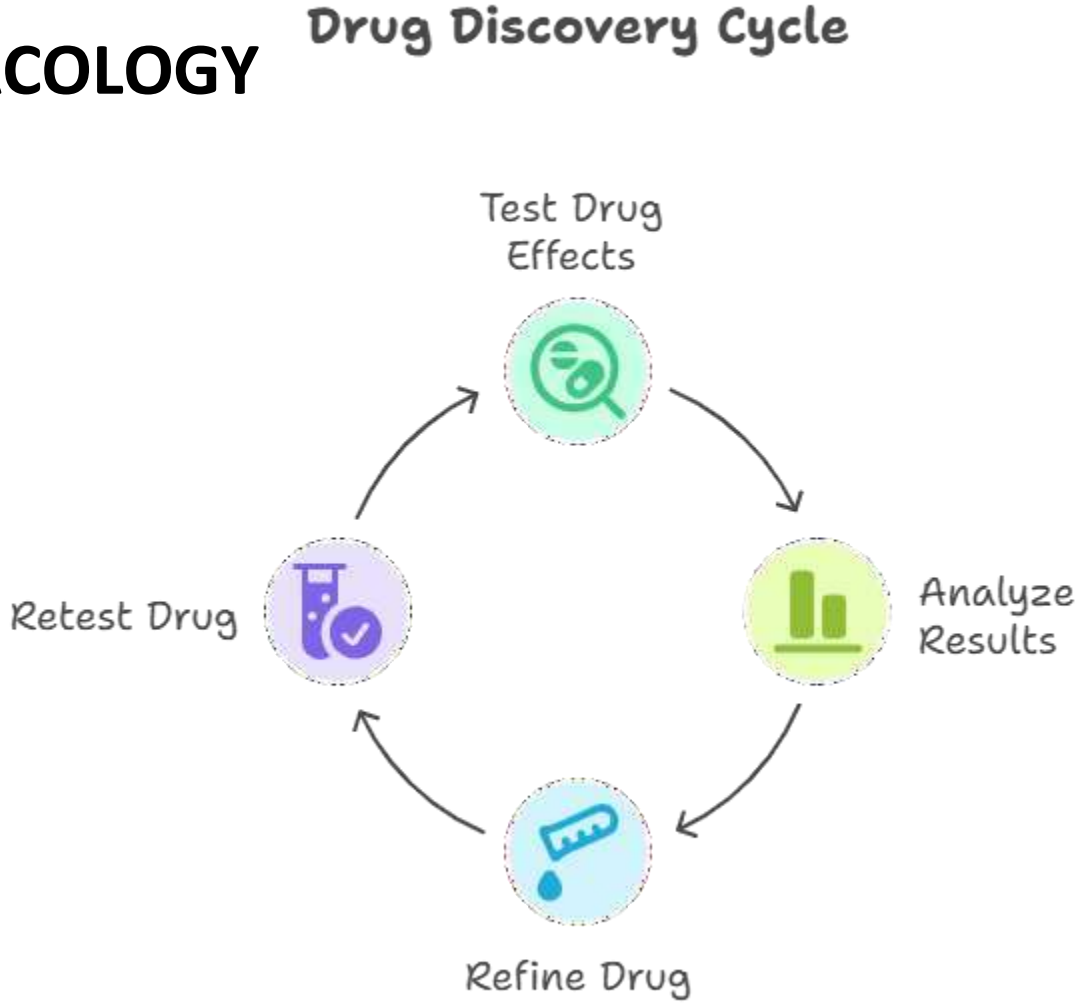


ROLE OF PHARMACIST IN PHARMACOLOGY

Ensure safe and effective drug use.

Counsel patients on proper medication use.

Monitor for side effects and interactions.



THANK YOU