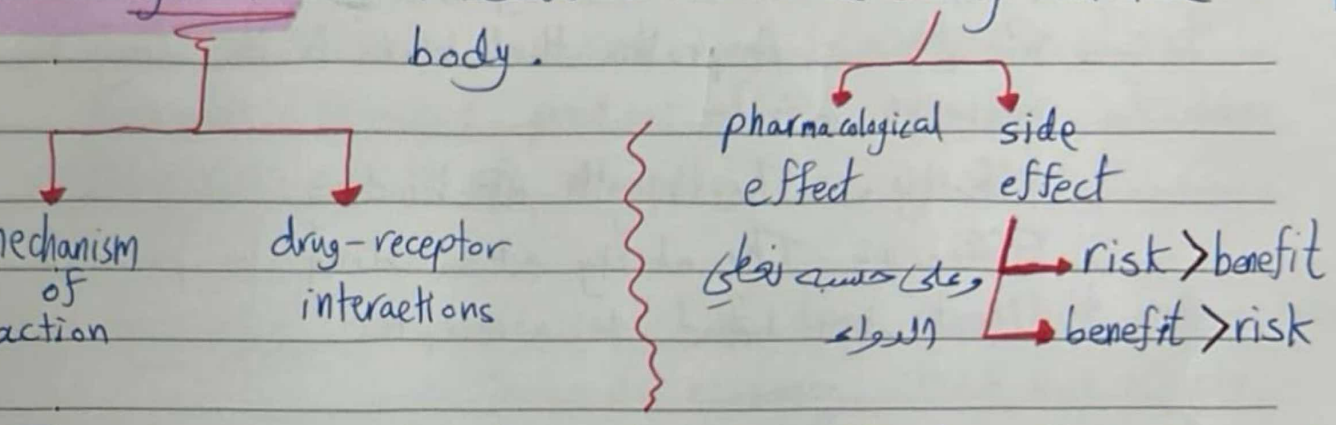
Dr. Rakan Haddad

* Pharmacology L.2 :- Pharmacodynamics

* Pharmacodynamics :- The effect of the drug on the body.



⇒ This study is needed to predict the effects of a drug at:-
a. different doses.
b. different patients.

* Ex:- The synthesis of adrenaline / nor-adrenaline in inhalers for patients with asthma. mimicking fight or flight reactions. activating β-receptors ↑ (agonist)

* Atherosclerosis :- The vessels lose their elasticity so the person can't take β-blockers opp. to adrenaline/nor-adrenaline (antagonist) so the pumping pressure wouldn't explode the heart.

* For people with problems in the liver/kidney we need to adjust the doses.

* Drug-Receptor Interactions:-
  - The interaction of the drug on or in the cell.
  - Receptor:- A protein that binds to the drug to exert it's effect
  - Affinity:- The strength of binding.
  - Efficacy:- The ability of a drug to produce the effect when bound to a receptor.

* Receptors:- A. Ion-channel: GABA, nicotinic
  B. G-protein:- GPCR's, adrenergic.
  C. Enzyme-linked:- insulin receptors.
  D. Intracellular:- Steroid hormone receptors (cholestrols)

  ⟹ Ex:- Binding of morphine to opioid receptors. to relieve pain.

→ Agonist:- A drug that binds and activates

→ Antagonist:- A drug that binds and deactivates (blocks)

→ Partial Agonist:- A drug that binds and partially activates receptors.

* Our bodies develop tolerance against a drug causing the need for higher doses + desensitization to receptors.

* Dose Response:- Relation between the drug dose and it's effect.
  - Threshold dose :- smallest dose to produce an effect
  - Maximum efficacy :- greatest effect regardless of dose
  - Potency :- amount of drug to cause an effect.

* Therapeutic window:- The range of drug doses that produces a therapeutic response without bad effects

Therapeutic Index :- Ratio of toxic effect to good effect

TI

Wide TI :- Safe

Narrow TI :- Narrow safety

* Patient specific factors :- Age, Genetics, Disease State, Tolerance

* Drug interactions :-

Synergestic :- Drugs that enhance each other

Antagonistic :- Drugs that oppose each other

* فريق دوبامين العلمي ...