

nature of the drug

- appropriate size
- electrical charge
- shape
- atomic composition

pharmacokinetics (ADME)

Absorption

Distribution

Metabolism

Excretion

oral route

advantages**	disadvantages
easy	slow effect
safe	destruction by GIT
self use	first pass effect
convenient	food-drug interaction
cheap	drug-drug interaction
no need for sterilization	not suitable for uncurious, emergency

sublingual administration

advantages	disadvantages
rapid effect	not for irritant drugs
no first pass metabolism	
high bioavailability	
no GIT destruction	
no food-drug interaction	

parental administration

Advantages	Disadvantages
high bioavailability	infectious
rapid action	sterilization
no first pass metabolism	pain
no food-drug interactions	need skill
no gastric interaction	anaphylaxis
suitable for emergency	expensive

inhalation

Advantages	Disadvantages
Rapid absorption area)	Only few drugs can be used
Rapid effects as IV bolus	
Provide local action	
Minor systemic effect	
low bioavailability	
Less side effects.	
No first pass effect	
Dosage form: Aerosol, Nebulizer	

rectal administration

Advantages	Disadvantages
Vomiting & children. &unconsciousness	Irregular absorption & bioavailability
irritant and bad tasting drugs	Irritation of rectal mucosa
less first pass metabolism	Not a well accepted route
dosage form: suppository or enema	

transdermal administration

Advantages	Disadvantages
bypass first pass effect	allergy to patches
convenient and painless	drugs must be highly lipophilic
ideal for drugs that are lipophilic and have poor oral bioavailability	delayed delivery of drugs
	limited to drugs taken in small daily dosages

topical application

rate of absorption depends on: physical characteristics of skin at site of application and lipid solubility of the drug

mechanisms of drug absorption

- simple diffusion= passive diffusion
- active transport
- facilitated diffusion
- pinocytosis (endocytosis)



simple or passive diffusion characters

common

occurs along conc gradient

non selective

not saturable

low structural specificity

no energy

no carrier is needed

depends on lipid solubility

depends on pKa of drug- pH medium

active transport characters

unusual

occurs against conc gradient

selective

saturable

require energy

carrier is needed (protein)

iron absorption

uptake of levodopa by brain

facilitated diffusion characters

occurs along conc gradient

selective

saturable

no energy is required

carrier is needed (protein)

factors influencing absorption

1. Effect of pH on drug absorption
 2. Blood flow to the absorption site
 3. Total surface area available for absorption
 4. Contact time at the absorption surface
 5. Expression of P-glycoprotein; transmembrane transporter protein.
- transport drugs from tissue to blood

