

**SNS COLLEGE OF PHARMACY  
AND HEALTH SCIENCES**



*Affiliated To The Tamil Nadu Dr. MGR Medical University, Chennai*

*Approved by Pharmacy Council of India, New Delhi.*

Coimbatore -641035

**COURSE NAME: BIOPHARMACEUTICS &  
PHARMACOKINETICS**

**III YEAR / II SEM**

**TOPIC 1: DISTRIBUTION**

**SUB TOPIC: Volume of drug distribution**

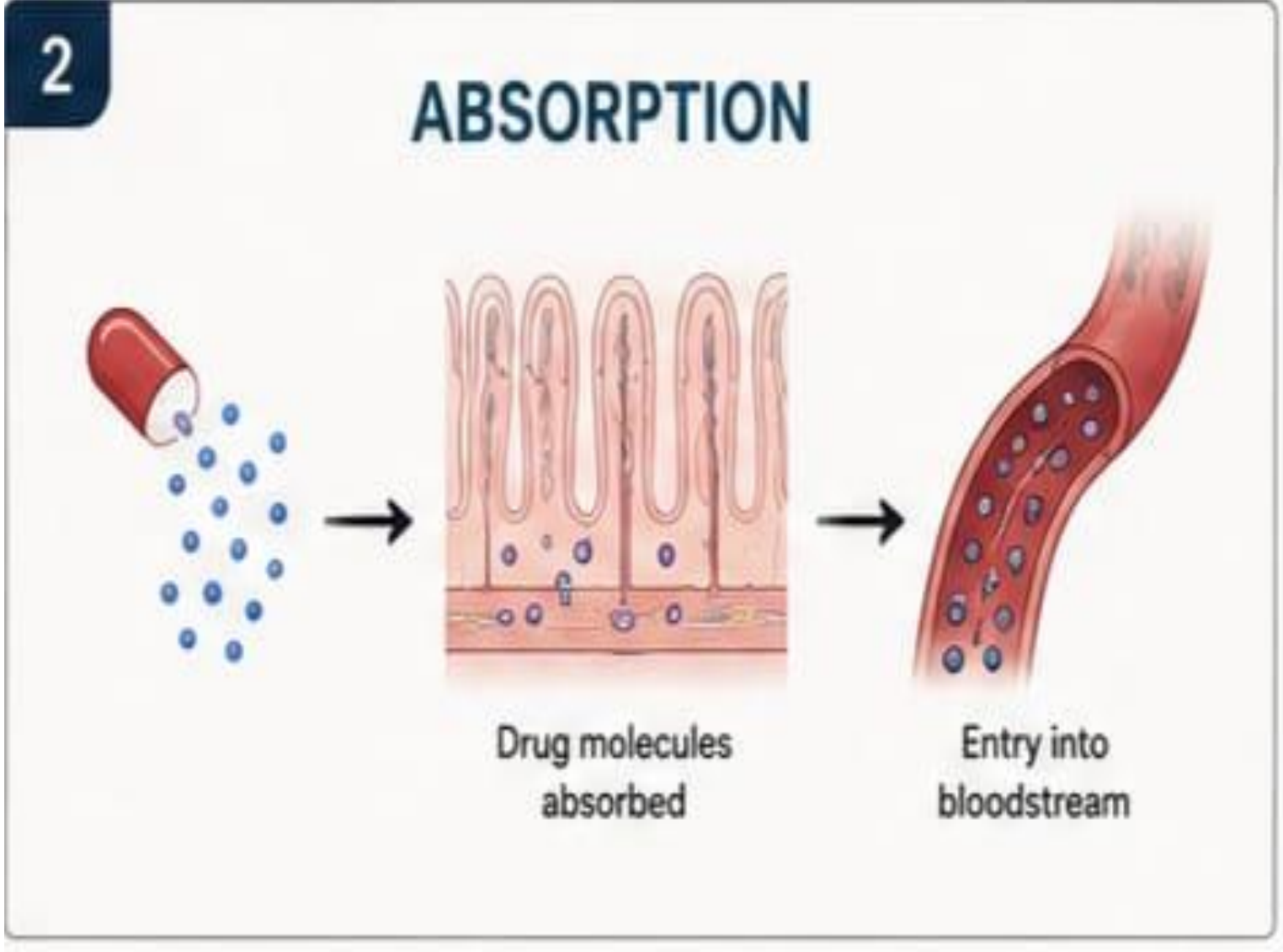
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# ABSORPTION

## VOLUME OF DRUG DISTRIBUTION

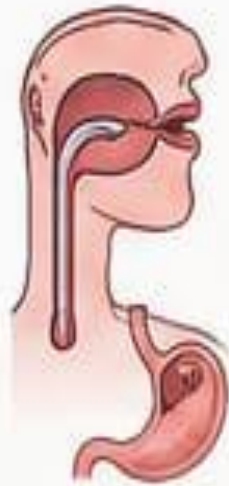
B.Pharm – 6th Semester





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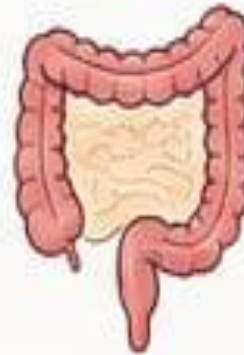
## ROUTES OF ABSORPTION



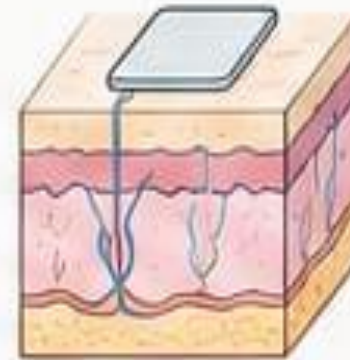
Oral



Sublingual



Rectal



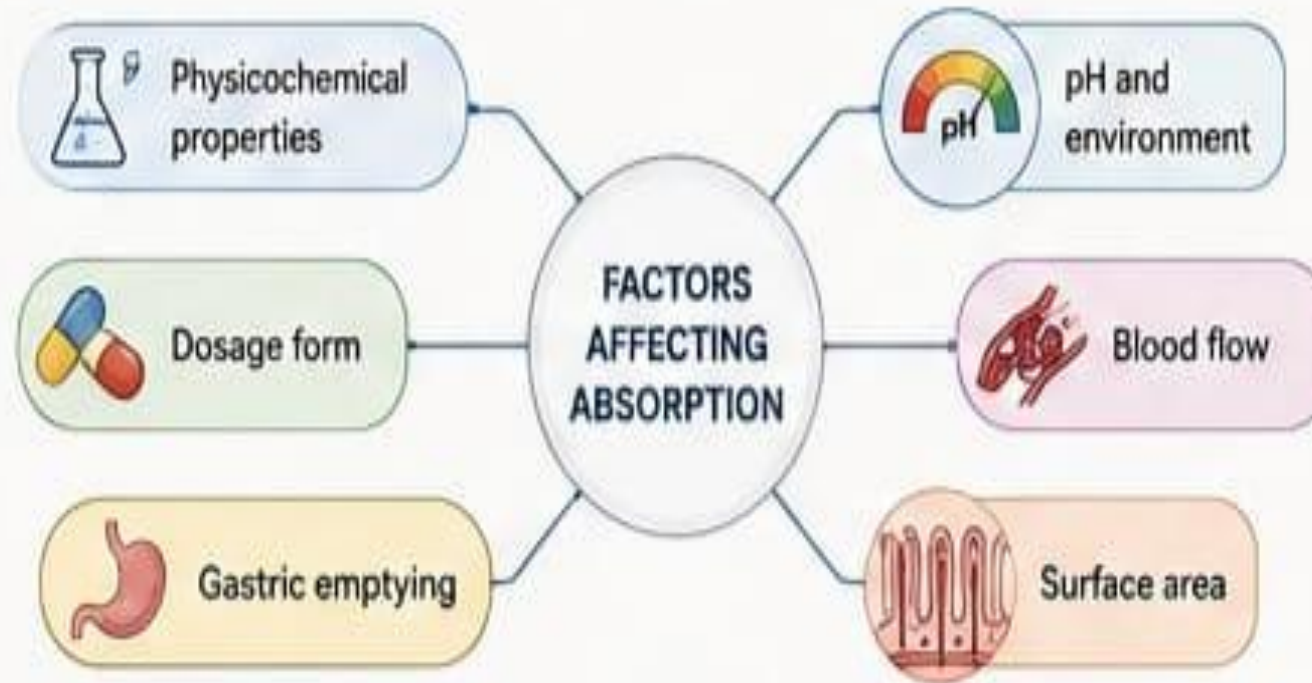
Transdermal



Parenteral

4

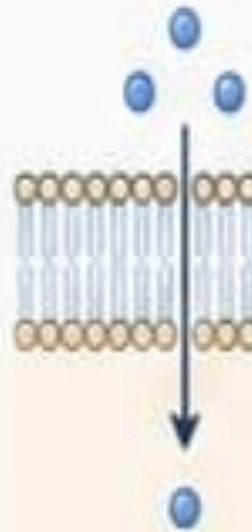
## FACTORS AFFECTING ABSORPTION



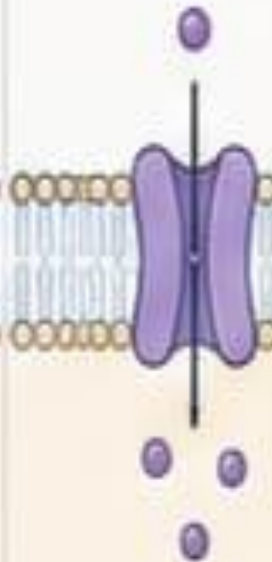
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# MECHANISMS OF ABSORPTION

Passive  
diffusion



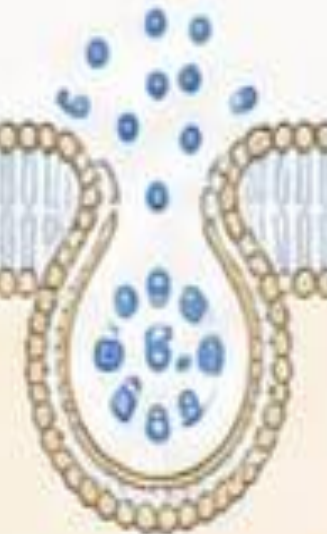
Facilitated  
diffusion



Active  
transport



Pinocytosis



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## VOLUME OF DISTRIBUTION ( $V_d$ )

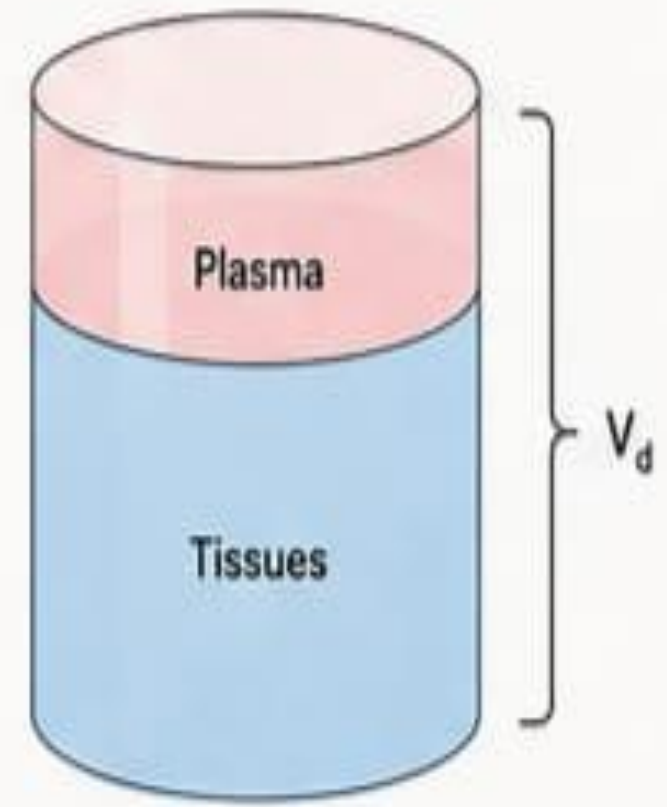
$$V_d = \frac{\text{Amount of drug in body}}{\text{Plasma drug concentration}}$$



Drug  
in body



Plasma drug  
concentration



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## SIGNIFICANCE OF VOLUME OF DISTRIBUTION



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## TYPES OF VOLUME OF DISTRIBUTION



**Low  $V_d$**   
( $< 1 \text{ L/kg}$ )

Drug remains mainly  
in plasma



**Normal  $V_d$**   
( $1 - 3 \text{ L/kg}$ )

Drug distributes in  
body fluids



**High  $V_d$**   
( $> 3 \text{ L/kg}$ )

Drug extensively  
distributes in tissues

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## FACTORS AFFECTING VOLUME OF DISTRIBUTION

