5.1 Absorption overview

Systemic absorption: the process by which unchanged drug proceeds from site of administration to site of measurement within the bosy (usually plasma).

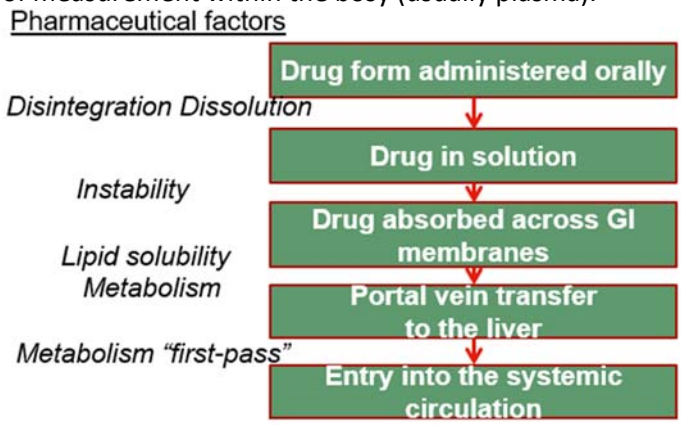
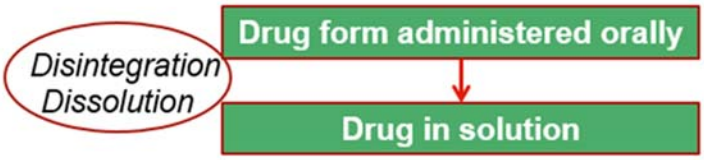


Figure 1: prerequisites for gastric absorption

Stomach	Small intestine (SI)	Large intestine
Hydrolysis of "acid-labile" drugs Main site of disintegration and dissolution. Favours dissolution of weak bases. Minimal absorption (into circulation). Protective mucous barrier – slow absorption. Acidic pH – as required for digestion.	Villi and microvilli. Large surface area (SA). No mucous barrier. High vascularised organ. PH 6.6 on average. Fluctuates between 6 to 7.5 along the small intestine. Primary site of absorption. Some disintegration and dissolution (particularly EC tablets).	Important for extent of absorption for some drugs. Mucous lining. No villi. For drugs with poor oral absorption there can still be some absorption. Slower site of absorption. Preparation for excretion.

Absorption – medication formulation factors



Processes necessary to allow absorption

The rate of disintegration and dissolution may affect

- Tmax – time to maximum concentration
- Cmax – maximum concentration reached
- AUC – area under the curve (extent bioavailability)

The greater the number of steps a product must undergo before the final absorption step, the slower is the availability and the greater is potential for bioavailability differences to occur. Solutions generally result in faster and more complete absorption of a drug, since a dissolution step is not required.

Solution – Suspension – capsule – tablet – coated tablet – controlled-release formulation