

## Pharmacokinetics Class Preparation

### Nursing 101

**GI SYSTEM:** The oral medication reaches the systemic circulation through the GI system. As a result, numerous factors can affect the absorption of the pill.

Questions:

1. A client is experiencing diarrhea. How could this affect absorption of an oral drug?

If the patient has diarrhea, the drug may not fully dissolve within the patient's intestines

2. How could the presence of food in the stomach affect the rate of absorption?

The presence of food in the stomach may slow the rate of absorption

**CARDIOVASCULAR SYSTEM:** Once the pill is absorbed into the bloodstream, it is carried or delivered to the sites of pharmacologic action where the drug produces its effects.

Question:

3. How do you think the distribution of the oral medication affected if a client has less than normal cardiac output?

Reduced cardiac output decreases the blood flow. This causes the drug to circulate at a slower rate through the body

**LIVER:** Most biotransformation takes place in the liver. Any decrease in the ability of the liver to metabolize medication could lead to an accumulation of the active drug in the bloodstream. This could put the client at risk for toxic effects and adverse reactions.

Questions:

4. How might nutritional status affect metabolism?

Malnutrition can lead to slower metabolism and lower liver enzyme activity. Obesity can affect liver enzyme activity and an increase of fat storage. Good nutrition supports optimal enzyme function.

5. What factors influence the rate of medication metabolism?

Age, genetics, nutrition, overall health of client

**KIDNEYS:** Drug excretion/elimination occurs mainly through the kidneys into the urine. If there is any impairment in kidney function, medications may not be excreted at the anticipated speed. Subsequent medication administration may lead to accumulation and potential toxicity.

Questions:

6. Why would very young and very old clients need to be closely monitored by nurse for signs and symptoms of drug toxicity?

Both cannot eliminate medications efficiently

7. How can the nurse assess kidney function?

Labs, urine studies and physical assessment