

## 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?  
**Oral absorption may not occur because the GI tract needs to be functional for the medication to be absorbed.**
2. How could the presence of food in the stomach affect the rate of absorption?  
**The oral medication has more time to be absorbed**

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? **It is going to take more time for that medication to distribute where it needs to go**

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? **If your client has poor nutrition status, your metabolism will likely be slower, which means the medication has more time to change poorly in your body.**
5. What factors influence the rate of medication metabolism? **How well your liver and kidneys are, age, race, ethnicity, specific genes, CYP enzymes**
6. 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:

7. Why would very young and very old clients need to be closely monitored by nurse for signs and symptoms of drug toxicity? **Because when you are very young/old, your**

**kidneys and other organs do not work as well or are not fully developed. So, if their kidneys cannot metabolize or excrete this medication, their body will be damaged. Therefore, you do not want your fragile client to go through irreversible damage. You should also know as the nurse, this might mean lesser doses in medication to prevent toxicity**

8. How can the nurse assess kidney function? **Look at their lab work or current illnesses**