

Toxicokinetics

A specific type of pharmacokinetics that studies what the body does to a medicinal product at toxic doses. These studies assess how a substance enters the body and what happens to it in the body depending on the absorption, distribution, metabolism and excretion of the substance. Toxicokinetic measurements that determine the severity of toxicity are:

- Duration and concentration of substance at the site of entry.
- Rate and amount that can be absorbed.
- Distribution in the body and concentration at specific sites.
- Metabolic efficiency and nature of the metabolites.
- Ability of the substance or its metabolites to pass through cell membranes and come into contact with specific cell components (e.g. DNA).
- The amount and duration of storage of the substance (or its metabolites) in body tissues.
- The rate and sites of excretion.

Different dose levels used in toxicokinetics, compared to pharmacokinetics, give rise to technological changes in such factors as solubility, stability, absorption, pre-systemic clearance, protein binding, and metabolism that may be influenced by dose size, and may give rise to profound differences in the design and interpretation of studies.