Drug Interactions Encyclopedia Article

Drug Interactions

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Drug Interactions

How well a prescribed or over-the-counter (OTC) medication works in the human body often depends on a patient's diet and any other drugs they consume. Patients prescribed multiple therapies need to be extremely aware of potential drug-drug interactions. Mixing medicines can sometimes cause an adverse effect not typically associated with the medication or an increase or decrease in the drug's action. For example, some antidepressants can prevent some hypertension drugs from properly lowering **blood** pressure. Certain antifungal medications can change the way cholesterol-lowering drugs metabolize in the body.

Drug interactions are typically either pharmacokinetic or pharmacodynamic in nature. Pharmacokinetic interactions involve one drug's ability to alter a secondary medication's absorption, distribution, **metabolism** and and/or excretion. Pharmacodynamic interactions relate to the concentrations of both interacting drugs and their response on organ systems and receptor sites.

Drug-drug interactions can result in serious side effects. Many drugs contain powerful ingredients that, when combined, can speed up the **heart** rate, cause a rapid drop in blood pressure, or create a build-up of deadly toxins that damage the **liver** and heart. Every year, a number of patients die as a direct result of the unintended mixing of medications. These serious consequences may result from the drugs' chemical-physical incompatibility, a change in the rate or quantity of the drug absorbed by the body, or an alteration of the body's receptors to bind to the medication.

Adverse interactions can also occur when mixing medications with certain foods and beverages. While taking oral medication at mealtime or with a snack is often recommended, some foods can alter the body's ability to absorb numerous drugs. Food can slow the body's absorption of antibiotics such as penicillin, tetracycline, and erythromycin. Grapefruit juice, for example, can prevent the body from properly absorbing certain blood pressure-lowering and cardiac medications.