Avoiding DRUG INTERACTIONS

People often combine foods. For example, chocolate and peanut butter might be considered a tasty combination. But eating chocolate and taking certain drugs might carry risks. In fact, eating chocolate and taking monoamine oxidase (MAO) inhibitors, such as Nardil (phenelzine) or Parnate (tranylcypromine), could be dangerous.

Tips to Avoid Problems

There are lots of things you can do to take prescription or over-the-counter (OTC) medications in a safe and responsible manner.

- Always read drug labels carefully.
- Learn about the warnings for all the drugs you take.
- Keep medications in their original containers so that you can easily identify them.
- Ask your doctor what you need to avoid when you are prescribed a new medication. Ask about food, beverages, dietary supplements, and other drugs.
- Check with your doctor or pharmacist before taking an OTC drug if you are taking any prescription medications.
- Use one pharmacy for all of your drug needs.
- Keep all of your health care professionals informed about everything that you take.
- Keep a record of all prescription drugs, OTC drugs, and dietary supplements (including herbs) that you take. Try to keep this list with you at all times, but especially when you go on any medical appointment. The Food and Drug Administration (FDA) has a Web site where you can get more information and download a sample medicine record: *www.fda.gov/cder/consumerinfo/my_medicine_record.htm*

Photo Illustration: FDA/Michael Ermarth

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MAO inhibitors treat depression. Someone who eats an excessive amount of chocolate after taking an MAO inhibitor may experience a sharp rise in blood pressure.

Other foods that should be avoided when taking MAO inhibitors: aged cheese, sausage, bologna, pepperoni, and salami. These foods can also cause elevated blood pressure when taken with these medications.

There are three main types of drug interactions:

- Drugs with food and beverages
- Drugs with dietary supplements
- Drugs with other drugs

"Consumers should learn about the warnings for their medications and talk with their health care professionals about how to lower the risk of interactions," says Shiew-Mei Huang, Ph.D., deputy director of the Office of Clinical Pharmacology in the Food and Drug Administration's (FDA) Center for Drug Evaluation and Research (CDER).

Drugs with Food and Beverages

Consequences of drug interactions with food and beverages may include delayed, decreased, or enhanced absorption of a medication. Food can affect the bioavailability (the degree and rate at which a drug is absorbed into someone's system), metabolism, and excretion of certain medications.

Examples of drug interactions with food and beverages …

Alcohol: If you are taking any sort of medication, it's recommended that you avoid alcohol, which can increase or decrease the effect of many drugs.

Grapefruit juice: Grapefruit juice is often mentioned as a product that can interact negatively with drugs, but the actual number of drugs the juice can interact with is less well-known. Grapefruit juice shouldn't be taken with certain blood pressure-lowering drugs or cyclosporine for the prevention of organ transplant rejection. That's because grapefruit juice can cause higher levels of those medicines in your body, making it more likely that you will have side effects from the medicine. The juice can also interact to cause higher blood levels of the anti-anxiety medicine Buspar (buspirone); the anti-malaria drugs Quinerva or Quinite (quinine); and Halcion (triazolam), a medication used to treat insomnia.

Licorice: This would appear to be a fairly harmless snack food. However, for someone taking Lanoxin (digoxin), some forms of licorice may increase the risk for Lanoxin toxicity. Lanoxin is used to treat congestive heart failure and abnormal heart rhythms. Licorice may also reduce the effects of blood pressure drugs or diuretic (urine-producing) drugs, including Hydrodiuril (hydrochlorothiazide) and Aldactone (spironolactone).

Chocolate: MAO inhibitors are just one category of drugs that shouldn't be consumed with excessive amounts of chocolate. The caffeine in chocolate can also interact with stimulant drugs such as Ritalin (methylphenidate), increasing their effect, or by decreasing the effect of sedative-hypnotics such as Ambien (zolpidem).

Drugs with Dietary Supplements

Research has shown that 50 percent or more of American adults use dietary supplements on a regular basis, according to congressional testimony by the Office of Dietary Supplements in the National Institutes of Health.

The law defines dietary supplements in part as products taken by mouth that contain a "dietary ingredient." Dietary ingredients include vitamins, minerals, amino acids, and herbs or botanicals, as well as other substances that can be used to supplement the diet.

Examples of drug interactions with dietary supplements …

St. John's Wort (Hypericum perforatum): This herb is considered an inducer of liver enzymes, which means it can reduce the concentration of medications in the blood. St. John's Wort can reduce the blood level of medications such as Lanoxin, the cholesterol-lowering drugs Mevacor and Altocor (lovastatin), and the erectile dysfunction drug Viagra (sildenafil).

Vitamin E: Taking vitamin E with a blood-thinning medication such as Coumadin can increase anti-clotting activity and may cause an increased risk of bleeding.

The rate of adverse drug reactions increases dramatically after a patient is on four or more medications.

Ginseng: This herb can interfere with the bleeding effects of Coumadin. In addition, ginseng can enhance the bleeding effects of heparin, aspirin, and nonsteroidal anti-inflammatory drugs such as ibuprofen, naproxen, and ketoprofen. Combining ginseng with MAO inhibitors such as Nardil or Parnate may cause headache, trouble sleeping, nervousness, and hyperactivity.

Ginkgo Biloba: High doses of the herb Ginkgo biloba could decrease the effectiveness of anticonvulsant therapy in patients taking the following medications to control seizures: Tegretol, Equetro or Carbatrol (carbamazepine), and Depakote (valproic acid).

Drugs with Other Drugs

Two out of every three patients who visit a doctor leave with at least one prescription for medication, according to a 2007 report on medication safety issued by the Institute for Safe Medication Practices. Close to 40 percent of the U.S. population receive prescriptions for four or more medications. And the rate of adverse drug reactions increases dramatically after a patient is on four or more medications.

Drug-drug interactions have led to adverse events and withdrawals of drugs from the market, according to an article on drug interactions co-authored by Shiew-Mei Huang, Ph.D., deputy director of FDA's Office of Clinical Pharmacology. The paper was published in the June 2008 issue of the *Journal of Clinical Pharmacology*.

However, market withdrawal of a drug is a fairly drastic measure. More often, FDA will issue an alert warning the public and health care providers about risks as the result of drug interactions.

Examples of drug interactions with other drugs …

Cordarone (amiodarone): FDA issued an alert in August 2008, warning patients about taking Cordarone to correct abnormal rhythms of the heart and the cholesterol-lowering drug Zocor (Simvastatin). Patients taking Zocor in doses higher than 20 mg while also taking Cordarone run the risk of developing a rare condition of muscle injury called rhabdomyolysis, which can lead to kidney failure or death. "Cordarone also can inhibit or reduce the effect of the blood thinner Coumadin (warfarin)," said Huang. "So if you're using Cordarone, you may need to reduce the amount of Coumadin you're taking."

Lanoxin (digoxin): "Lanoxin has a narrow therapeutic range. So other drugs, such as Norvir (ritonvair), can elevate the level of Lanoxin," says Huang. "And an increased level of Lanoxin can cause irregular heart rhythms." Norvir is a protease inhibitor used to treat HIV, the virus that causes AIDS.

Antihistamines: Over-the-counter (OTC) antihistamines are drugs that temporarily relieve a runny nose, or reduce sneezing, itching of the nose or throat, and itchy watery eyes. If you are taking sedatives, tranquilizers, or a prescription drug for high blood pressure or depression, you should check with a doctor or pharmacist before you start using antihistimines. Some antihistamines can increase the depressant effects (such as sleepiness) of a sedative or tranquilizer. The sedating effect of some antihistamines combined with a sedating antidepressant could strongly affect your concentration level. Operating a car or any other machinery could be particularly dangerous if your ability to focus is impaired. Antihistamines taken in conjunction with blood pressure medication may cause a person's blood pressure to increase and may also speed up the heart rate. FDA

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FDA's Drug Development and Drug Interactions Web site
www.fda.gov/cder/drug/drugInteractions/default.htm

Consumer Education: Ensuring Safe Use of Medicine
www.fda.gov/cder/consumerinfo/ensuring_safe_use_text.htm

MedWatch
www.fda.gov/medwatch/

Preventable Adverse Drug Reactions: A Focus on Drug Interactions
www.fda.gov/cder/drug/drugReactions/default.htm