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# FOOD AND DRUG INTERACTION

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Rx

# Food and Drug Interactions

**Leon H. Rottmann**
**Extension Specialist-Human Development**

The next time you reach for a pill to cure your ills, take a large dose of caution, too. Combining drugs, or mixing them with certain foods or with alcohol and smoking can produce serious, even fatal complications. When your physician gives you a prescription, tell him or her about the medications you are already taking, including any over-the-counter (OTC) drugs, and be sure that you understand when and how to take the new drugs.

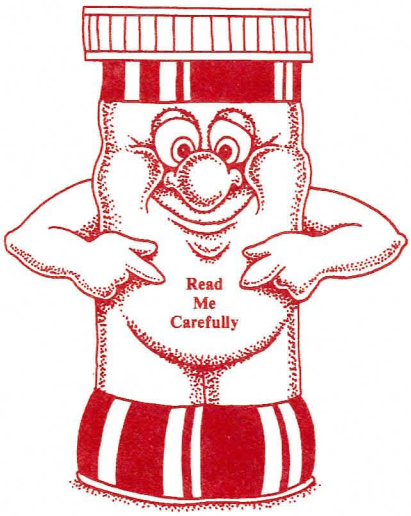
### Protect Yourself Against a Harmful Drug Interaction

The words *"drug"* and *"medicine"* mean the same thing. Headache remedies, cold medicines, laxatives, and other nonprescription medicines are drugs. So is alcohol. No drug is too unimportant to consider since a harmful interaction may be the end result when two or more drugs are being used.

Never start taking a second drug unless your physician knows about it. Have your pharmacist set up a personal record of all the medications you are taking, so he can tell at a glance if you may be exposed to a drug interaction. This record can include prescription and nonprescription drugs, as well as information related to your use of alcoholic beverages and tobacco.

Labels on OTC medicines warn you about side effects or unwanted reactions that may occur. For example, some medicines may make you drowsy, and the label will tell you not to drive or operate machinery when taking the drug. *Read the warnings!*

The following quotes are examples of warnings found on the labels of OTC medications:




- If pain persists more than 10 days, or redness is present, or in conditions affecting children under 12 years of age, consult a physician.
- Do not give to children under 3 years of age.
- Caution. Do not exceed the recommended dosage.
- This medication may damage the kidneys when used in large amounts or for a long period of time. Do not take more than the recommended dosage nor take regularly for longer than 10 days without consulting a physician.
- Keep out of reach of children.
- Caution. Should not be taken by persons with high blood pressure, heart disease, diabetes, or thyroid disease unless directed by a physician.

**Always read warnings carefully as a drug that is safe for others to use could be dangerous for you.**

The following are common directions for using OTC medications:

- If pain persists for more than 10 days, or redness is present, or in conditions affecting children under 12 years of age, call your family physician.
- When using over-the-counter drugs, take only for minor ailments that last a short time (less than 10 days).
- Do not use OTC drugs steadily except on doctor's orders.
- Do not become a steady user of any drugs except under a physician's direction and monitoring.
- If you take several drugs at the same time, they may react with each other to give you side effects. Consult your doctor before you treat yourself with OTC remedies.
- Be on guard against high-pressure salesmanship for drugs over television or radio, by newspapers, magazines, or books, or by door-to-door peddlers.

Be sure prescription drugs are sold only by prescription. Never take a drug prescribed for someone else. That drug may not be suitable for you and your ailment.

A prescription is designed for you and is based on your age, weight, general health, allergies, and the illness. Prescriptions should not be traded around in the family or neighborhood. Your prescription should never be used by another individual.

Drugs may enter the body in a variety of ways. Any drug may cause harmful interactions, no matter which way it enters the body.

- Tablet or capsule by mouth
- Liquid
- Suppository
- Injectable solution — intravenous (IV) or intramuscular (IM)
- Ointment
- Vapor for inhalation

Know the generic name as well as the trade name of each medication you are taking. Ask the pharmacist to include the generic name on your prescription bottle because most warnings on nonprescription drugs use the generic name.

**Prevent Undesirable Food-Drug Interactions**

Always read the labels and the package inserts that come with prescription drugs and over-the-counter remedies.

Follow your doctor's or pharmacist's orders about when to take your medications, and what foods or beverages to avoid while taking them.

Don't be afraid to ask how drugs might interact with your favorite foods, especially if you consume large amounts of certain foods and beverages. Be sure to tell your doctor about any unusual symptoms that follow eating particular foods.

Eat a nutritionally well-balanced diet from a wide variety of foods. Use of a drug, even on a long-term basis, is less likely to cause depletion of vitamins and minerals if your overall nutritional status is good.

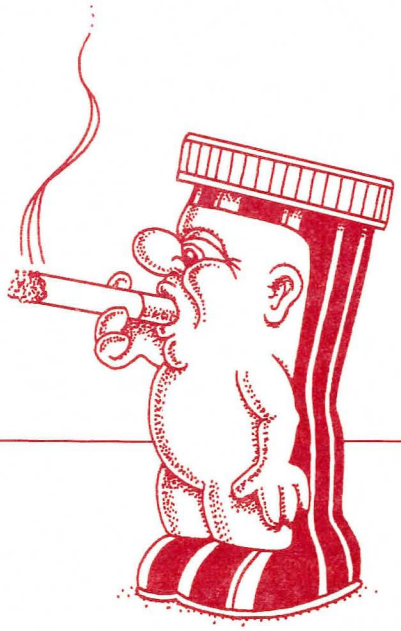
*Before wine and cheese, and for those who drink . . .* It's a good idea not to drink alcohol if you are taking any medications, unless your doctor specifically approves. Alcohol mixed with the following drugs could result in loss of consciousness: Antihistamines, sleeping pills (such as Seconal), narcotic analgesics (such as Percodan, codeine), and phenothiazines (major tranquilizers). Alcohol taken with MAO (monamine oxidase) inhibitors may produce life-threatening high blood pressure. Oral antidiabetics, griseofulvin (an antifungal agent: Fulvicin), metronidazole (for treatment of vaginal infections: Flagyl), and nitrofurantoin (an antibiotic) mixed with alcohol may produce flushing, headaches, nausea, vomiting, and chest and abdominal pains.

In addition, alcohol dissolves the outer coating on the time-release pills inside some cold and diet capsules, resulting in a single large, possibly toxic, dose.

In amounts normally consumed, alcoholic beverages make a negligible contribution of nutrients to the diet, and therefore cannot be considered an important food. However, alcoholic beverages can be included safely and beneficially in the diets of many healthy individuals, and can also be incorporated into certain therapeutic regimens with a physician's consent.

Including alcoholic beverages in the diet, as with any other food, must be properly planned so as not to sacrifice any nutrients essential to a well-balanced diet. For normal diets, the calories contributed by alcohol probably should not exceed 10 percent of the total required for maintaining ideal body weight. When an individual's total caloric intake is severely restricted, the diet must be intelligently planned to incorporate the most nutritious foods at the lowest energy cost.

As with most other things in life, moderation of alcohol consumption is the key to remember. Alcohol should never be used in such quantities that the blood alcohol concentration will rise to an undesirable level. If you use alcohol, be sure to check with your physician or pharmacist before using other drugs.



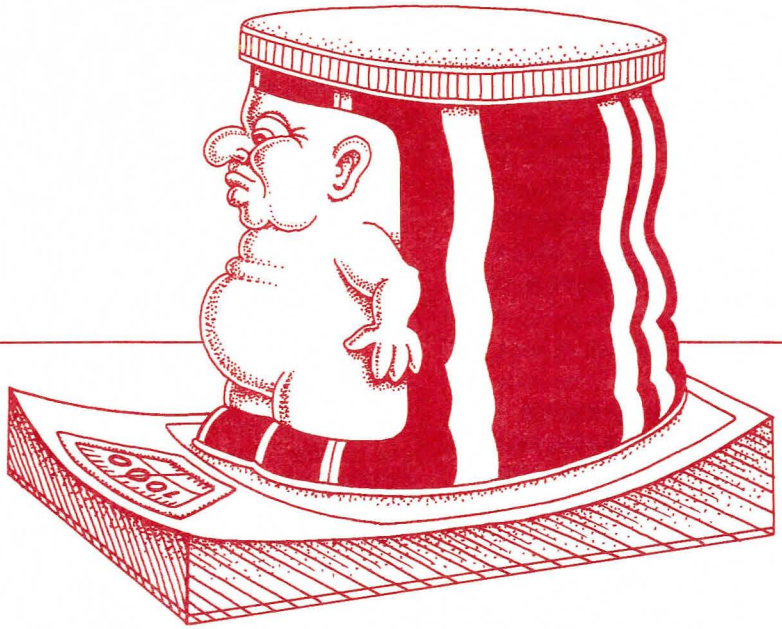
*For persons who smoke* . . . Be sure to tell your doctor if you smoke before taking any prescription medication as smoking changes the effectiveness of many drugs. For smokers who take oral contraceptives, the risk of blood clotting increases, especially after age 35 and with more than 15 cigarettes a day. Other medications have a reduced effect in smokers because they are eliminated more quickly than in nonsmokers. These medications include benzodiazepines, tricyclic antidepressants, insulin, propranolol (high-blood-pressure medication), phenothiazines (major tranquilizers), phenylbutazone (a nonsteroidal anti-inflammatory agent), propoxyphene (painkiller: Darvon), and theophylline (anti-asthma drug: Aminophyllin, Choledyl, Theo-Dur).

*Appetite and taste* . . . The most widely recognized example of a food-drug relationship is that of drugs prescribed for the treatment of obesity. Most of these are amphetamines, which depress the appetite. However, amphetamines presently used for appetite control have not been uniformly effective or without potential hazard; thus, the problem of weight control still lacks a satisfactory pharmacological answer. In short, for most people, medicine does not take away the fat.

Because many factors — emotional, psychological cultural, social, economic, and sensory — influence what and how much we eat, interpreting the results of dietary studies is very complicated. This may account for the lack of precise scientific data on the effects of drugs on appetite control.

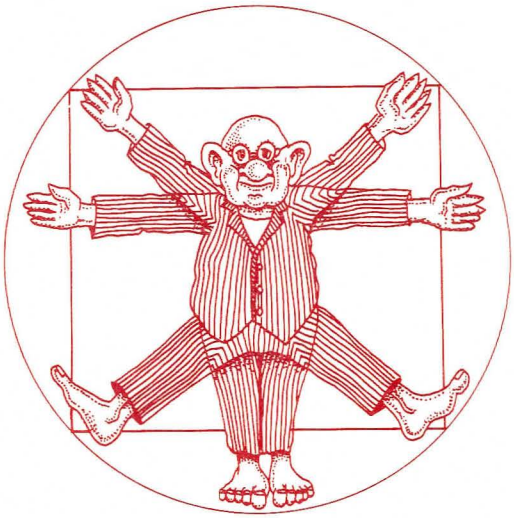
However, there are some drugs that alter the ability to taste, or that cause nausea and gastrointestinal upset, which in turn depress appetite. There are also bulk agents, such as methylcellulose and guar gum, that absorb fluid and swell in the gastrointestinal tract. Because of the resulting feeling of fullness, they may slightly reduce appetite.

On the other hand, there are drugs that can increase appetite. These include insulin, steroids, sulphonylureas, psychotropic drugs, and certain antihistamines. However, as in the case of appetite control, there is no available safe and effective drug at present to reliably increase appetite to a significant degree.



## Drugs in Systems of the Body

This section briefly discusses drugs that are used by the various systems of the body. Two or more drugs for each of the systems represented are used as examples.



### *Circulatory System*

The circulatory system is made up of blood vessels, the heart, blood, lymph, and lymph glands. This system maintains an adequate blood supply throughout the body. Drugs act either on the blood, the blood vessels, the heart, or on those nerves that control circulation.

- Coagulants and Anticoagulants: Drugs to help clotting — vitamin K.
  Drugs to prevent clotting — heparin.
- Vasodilators and Vasoconstrictors:
  Vasodilators — dilate or increase diameter of blood vessels.
  Vasoconstrictors — constrict or narrow the vessels.
- Digitalis — strengthens the force of heart contractions, and helps to regulate irregular heart beat.

### *Respiratory System*

The respiratory system includes the lungs, trachea, bronchial tubes, larynx, pharynx, mouth, and nose. This system is sensitive to infections caused by organisms, bacteria, and viruses.

- Antibiotics to treat infection — Penicillin, etc.
- Antihistamines — reduce the symptoms of allergies, hay fever, and colds. May make you drowsy or dizzy.
- Vasoconstrictors — nose drops to reduce symptoms of a head cold.
- Sedatives — cough medicines for severe coughs; frequently contain a narcotic that acts directly on the central nervous system. Aspirin is used for minor respiratory infections.

### *Digestive System*

The digestive system consists of two groups of organs. The alimentary canal includes the mouth, pharynx, esophagus, stomach, small intestine, large intestine, and rectum. Accessory digestive organs are the teeth, tongue, salivary glands, liver, gall bladder, and pancreas. Physicians prescribe a variety of drugs for disorders of the alimentary canal.

- Antacids — for indigestion and ulcers.
- Laxatives — for constipation.
- Absorbents and antidiarrheal preparations — to control diarrhea.
- Antispasmodics — to relieve spasms or cramps in the digestive tract.

### *Nervous System*

The nervous system receives and sends all body sensations, and transmits commands from the brain to muscles and some organs for movement and other activities. The nervous system is separated into two parts: the central nervous system, composed of the brain and the spinal cord; and the peripheral nerves. The drugs most frequently used for the nervous system are depressants and stimulants.

- Depressants (sedatives) — one common group is the barbiturates or sleeping pills (amytal: Seconal).
- Stimulants — used to pep up the body. Includes amphetamines, caffeine (benzedrine; dexedrine; various beverages, including coffee, tea, cocoa, some soft drinks).
- Narcotics — drugs regulated by federal narcotic laws (including morphine, codeine, and demerol).
- Hallucinogens — illegal drugs, such as LSD, mescaline, and marijuana, that produce illusions that are not real.

*Urinary System*

The urinary system consists of the kidneys, ureters, urinary bladder, and urethra. Diuretics and antibiotics are the types of drugs frequently used to treat urinary system disorders.

- Diuretics — used to increase the urine flow and to reduce edema; also often used to reduce blood pressure.
- Antibiotics — antibiotic drugs are often prescribed for various urinary infections.

*Endocrine Glands*

There are several endocrine glands — the pituitary, thyroid, parathyroid, thymus, pancreas, and adrenal — that secrete important hormones into the blood to perform various functions.

- Pituitary gland — growth regulator.
- Thyroid — controls body metabolism and helps control body temperature. Contains substantial amount of iodine.
- Parathyroid — regulates the movement of calcium into and out of the bone structure.
- Thymus — largest during childhood, specific function is not known.
- Pancreas — secretes insulin.
- Adrenal — helps regulate the metabolism of carbohydrates, fats, proteins, minerals, and water; secretes adrenalin and steroid hormones such as cortisone, which may decrease the body's reaction to inflammation during treatment for rheumatic fever. (Rheumatic fever can be prevented if all strept throat infections are treated adequately with penicillin or other antibiotics.)

## Oral Contraceptives

The "pill" is a commonly discussed medication. There is widespread controversy about the use of oral contraceptives because of the physical and social consequences affecting the lives of millions of healthy young female adults and their families.

All oral contraceptives contain female sex hormones designed to prevent pregnancy. They are all considered new drugs, and thus must be proven both *safe* and *effective* when used as directed before permission for commercial distribution is granted by the FDA.

Most women who want to take the pill can do so with safety, but only under the direction of a physician. As previously mentioned, the risk of blood clotting is increased in smokers over 35 taking the pill. Some women may also require additional B vitamins when using oral contraceptives.

## Drug Use, Misuse, and Abuse

Every time a drug is taken, there is a reaction. For most people that reaction is a good one because the drug acts as expected and either cures or helps the condition for which it was taken. However, some people can have adverse reactions, which may range from mild — a slight rash, mild headache, nausea, or drowsiness — to severe, with prolonged vomiting, bleeding, diarrhea, dizziness, or impaired vision or hearing. If the reaction is mild, you may not have to discontinue the drug. If the reaction is severe, stop use of the drug at once and consult your physician.

Each medicine you take not only acts on your body, but may also alter the effect of any other drugs you are taking. Sometimes this can cause dangerous or even fatal reactions.

For example, aspirin increases the blood thinning effect of medications prescribed for patients with heart disease. A patient who has been taking such a medication may risk hemorrhage if he uses aspirin when he gets a headache. Ask your pharmacist which drugs can be taken at the same time.

Alcohol may increase the effect of a drug. Sleeping pills and antihistamines are examples of drugs that can interact with alcohol to produce potentially harmful results. Seek professional guidance before combining alcohol with prescription or OTC drugs to prevent adverse reactions.

By law, drugs are defined as articles *intended* for use in diagnosing, curing, treating, or preventing disease in people or animals. All medicines contain drugs, but not all drugs are legal as medicines. For example, marijuana, heroin, and LSD are drugs, but are not legal.

The proper use of drugs requires some definitions.

*Drug use* is taking a substance for its intended purpose in the appropriate amount, frequency, strength, or manner.

*Drug misuse* is taking a substance for its intended purpose, but not in the appropriate amount, frequency, strength, or manner.

*Drug abuse* is deliberately taking a substance for other than its intended purpose, and in a manner that can result in damage to the person's health or his ability to function.

## Guidelines for Using and Storing Medicines

To prevent accidents . . .

- Read instructions on labels carefully.
- Use a light when taking or dispensing medicines at night.
- Keep all medicines in a dry, safe place.
- Discard unused medicines after the illness.
- Flush medicines down the stool, or burn them (do not discard in trash).

When drugs are misused or abused, there can be a real emergency. This may be due to:

*Drug misuse* — taking too much or too often.

*Side effects* — reactions to drugs.

*Carelessness* — taking the wrong drug or forgetting when you took a drug.

*Accidents* — children taking drugs. *Never* tell children drugs are candy or a treat!

Drugs or medicines can be both beneficial and harmful. This is according to several factors, such as use, amount, and who takes the drugs. For example, salt is excellent for seasoning food, but if used in an excessive amount in a baby's formula, it can cause death. It also causes fluid retention, which is harmful to cardiac patients.

Aspirin can relieve a headache, but if a child takes too many, death could result. More children are poisoned with aspirin than with any other drug or product.

Under a law passed in 1970, the FDA now requires that selected classifications of medicines be sold in containers with safety closures that are difficult for children to open. Adults should follow directions on these safety closures and learn how to use them.

### Summary

Although the importance of food-drug interactions is not fully recognized, a better understanding by the consumer of the potential for these interactions is valuable in the treatment of illnesses, diseases, and malnutrition. Some drugs interact with foods to cause adverse reactions; some foods cause drugs not to be as effective. More research is needed to determine how these interactions occur so that the results can be controlled or prevented. Until this information is available, it is important that consumers read and follow all label instructions and warnings, and communicate fully with physicians and pharmacists to obtain the desired benefits from drugs while avoiding possible adverse reactions.

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