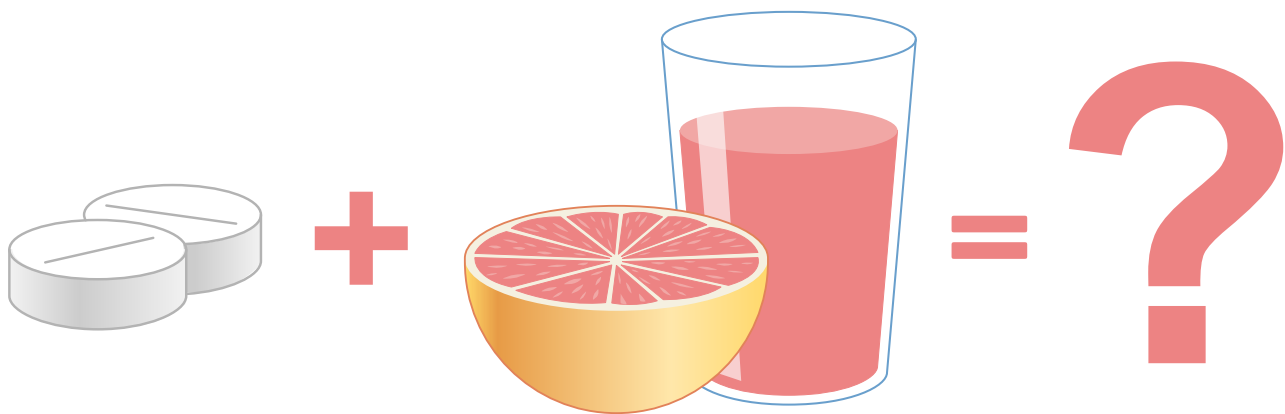


Grapefruit Juice and Medicine May Not Mix

Grapefruit juice can be part of a healthful diet—most of the time. It has vitamin C and potassium—substances your body needs to work properly.



But it isn't good for you when it affects the way your medicines work.

Grapefruit juice and fresh grapefruit can interfere with the action of some prescription drugs, as well as a few non-prescription drugs.

This interaction can be dangerous, says Shiew Mei Huang, acting director of the Food and Drug Administration's Office of Clinical Pharmacology. With most drugs that interact with grapefruit juice, "the juice increases the absorption of the drug into the bloodstream," she says. "When there is a higher concentration of a drug, you tend to have more adverse events."

For example, if you drink a lot of grapefruit juice while taking certain statin drugs to lower cholesterol, too much of the drug may stay in your body, increasing your risk for liver damage and muscle breakdown that can lead to kidney failure.

Drinking grapefruit juice several

hours before or several hours after you take your medicine may still be dangerous, says Huang, so it's best to avoid or limit consuming grapefruit juice or fresh grapefruit when taking certain drugs.

Examples of some types of drugs that grapefruit juice can interact with are:

- some statin drugs to lower cholesterol, such as Zocor (simvastatin), Lipitor (atorvastatin) and Pravachol (pravastatin)
- some blood pressure-lowering drugs, such as Nifediac and Afeditab (both nifedipine)
- some organ transplant rejection drugs, such as Sandimmune and Neoral (both cyclosporine)
- some anti-anxiety drugs, such as BuSpar (buspirone)
- some anti-arrhythmia drugs, such as Cordarone and Nexterone (both amiodarone)
- some antihistamines, such as Allegra (fexofenadine)

Grapefruit juice does not affect all the drugs in the categories above. Ask your pharmacist or other health care professional to find out if your specific drug is affected.

Too High or Too Low Drug Levels

Many drugs are broken down (metabolized) with the help of a vital enzyme called CYP3A4 in the small intestine. Certain substances in grapefruit juice block the action of CYP3A4, so instead of being metabolized, more of the drug enters the bloodstream and stays in the body longer. The result: potentially dangerous levels of the drug in your body.

The amount of the CYP3A4 enzyme in the intestine varies from one person to another, says Huang. Some people have a lot, and others have just a little—so grapefruit juice may affect people differently when they take the same drug.

While scientists have known for several decades that grapefruit juice can cause a potentially toxic level of certain drugs in the body, Huang says more recent studies have found that the juice has the opposite effect on a few other drugs.

“Grapefruit juice reduces the absorption of fexofenadine,” says Huang, decreasing the effectiveness of the drug. Fexofenadine (brand name Allegra) is available in both prescription and non-prescription forms to relieve symptoms of seasonal allergies. Fexofenadine may also be less effective if taken with orange or apple juice, so the drug label states “do not take with fruit juices.”

Why this opposite effect?

It involves the transportation of drugs within the body rather than their metabolism, explains Huang. Proteins in the body known as drug transporters help move a drug into cells for absorption.

Substances in grapefruit juice block the action of a specific group of transporters. As a result, less of the drug is absorbed and it may be ineffective, Huang says.

When a drug sponsor applies to FDA for approval of a drug, the sponsor submits data on how its drug is absorbed, metabolized and transported says Huang. “Then we can decide how to label the drug.”

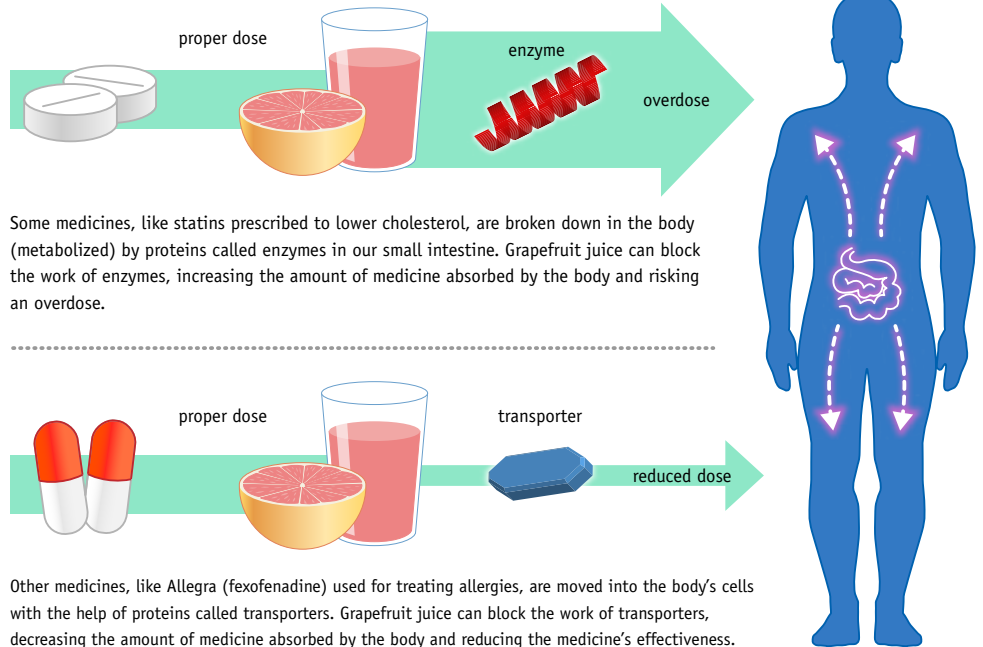
FDA has required some prescription drugs to carry labels that warn against consuming grapefruit juice or fresh grapefruit while using the drug, says Huang. And the agency’s current research into drug and grapefruit juice interaction may result in label changes for other drugs as well.

Tips for Consumers

- Ask your pharmacist or other health care professional if you can

How Grapefruit Juice Affects Some Medicines

When medicine is swallowed, it dissolves and the body absorbs it through cells in the small intestine. Grapefruit juice can interfere with this process, causing too much or too little medicine to be released into the body.



have fresh grapefruit or grapefruit juice while using your medication. If you can’t, you may want to ask if you can have other juices with the medicine.

- Read the Medication Guide or patient information sheet that comes with your prescription medicine to find out if it could interact with grapefruit juice. Some may advise not to take the drug with grapefruit juice. If it’s OK to have grapefruit juice, there will be no mention of it in the guide or information sheet.
- Read the Drug Facts label on your non-prescription medicine, which will let you know if you shouldn’t have grapefruit or other fruit juices with it.
- If you must avoid grapefruit juice with your medicine, check the label of bottles of fruit juice or drinks flavored with fruit juice to make sure they don’t contain grapefruit juice.

- Seville oranges (often used to make orange marmalade) and tangelos (a cross between tangerines and grapefruit) affect the same enzyme as grapefruit juice, so avoid these fruits as well if your medicine interacts with grapefruit juice. [FDA](#)

Find this and other Consumer Updates at www.fda.gov/ForConsumers/ConsumerUpdates

Sign up for free e-mail subscriptions at www.fda.gov/consumer/consumerenews.html