



[Home](#) > [Health](#) > [Drug Interactions](#)

# Drug Interactions

There are thousands of prescription drugs, with more and more new medications introduced every year, and hundreds of dietary supplements and herbal products available in pharmacies and stores in the U.S. Consumers should be aware of the dangers of combining certain drugs and other substances, including supplements, herbal products, foods, and beverages.

**Written By** [Elaine Silvestrini](#)

**Edited By** [Kevin Connolly](#)

**Medically Reviewed by** [Ryan Rodriguez, Pharm.D., BCPS](#)

**This page features** [20 Cited Research Articles](#)

Last Modified: *March 28, 2024*

FACT CHECKED ✓

WHY TRUST DRUGWATCH?



Patients who take prescription medicine should know that in addition to potential [side effects](#), it's important to be aware of how the drugs interact with other drugs, supplements, and certain foods and beverages.

According to the government's [National Health Survey](#), after adjusting for age, about 34 percent of adults are taking 1 to 4 prescription drugs, and 11 percent are taking 5 or more.



## Multiple Medications and Supplements

A 2016 [study](#) in JAMA Internal Medicine found that older adults are increasingly using multiple medications and supplements. The study found 36 percent regularly using five or more drugs or supplements and 15 percent at risk for potential major drug interactions.

Particularly dangerous reactions can occur when a person takes two or more drugs that have similar properties that magnify each other's effects. Also dangerous is a situation in which the person ingests drugs with opposite properties that cancel the benefit of

both drugs. Another common adverse interaction can occur when one drug alters the concentration of another drug.


## Interaction Risks

Not all [drugs](#) interact with each other. However, the more medications a patient takes, the more likely it is that some medications will interact with each other. With proper oversight from a doctor, it can still be possible to take multiple medications safely and avoid interactions.

### THE DRUG-INTERACTION RISKS ARE:

15% 

*15 percent for two medications*

40% 

*40 percent for five medications*



*80 percent for seven medications*

This is a particular concern for [older people](#), as close to half take five or more medications, and 12 percent take 10 or more.

## **RISKS VARY**

For people in hospitals, adverse drug interactions may be the fourth leading cause of death.

Interactions can affect how medications work in the body. They can enhance or decrease the effects of the drugs. They can also contribute to the possibility of dangerous side effects. The results of an interaction vary depending on the person and other things like the particular drugs that are interacting, the doses, the timing and even genetics.

In some instances, drug interactions discovered after medication approval were so dangerous that the drugs were [pulled from the market](#).



## Drug Interaction Health Risks

Possible side effects from interactions also vary widely.

### They Include:

---

Drowsiness

Rapid heartbeat

Changes in blood pressure

Bleeding

Flushing

Diarrhea

Ruptured Achilles tendon

Coma

Death

## Interaction Factors

Drug interactions are complicated and largely hard to predict. Not everyone who takes drugs that are known to interact with each other will experience the effects.

**The likelihood of interactions causing problems can depend on several factors including:**

---

Genetics

Age

Lifestyle, such as the patient's diet and her exercise habits

Other medical conditions

The length of time both drugs are taken

It's best to talk to your doctor or pharmacist about the potential effects of combining medications, as well as dietary supplements and even certain foods and beverages.

## Drug Interaction Types

**There are different types of drug interactions. These are:**

---



## Drug-drug interactions

Drug-drug interactions happen when drugs react with each other. One example of this is when a patient takes a sedative to fall asleep and also has allergies and takes an antihistamine. Combining both of those drugs can make the patient even sleepier, slow their reactions and make it dangerous to drive or operate machinery.

---

## Drug-food/beverage interactions

Drug-food/beverage interactions happen when drugs interact with what you eat or drink. Alcohol is a well-known example of this. Drinking an alcoholic beverage while taking some medications that make you sleepy can additionally slow your reactions and make you sleepier. Taking some drugs that affect blood pressure or heart function might interact with coffee or other beverages containing caffeine.

---

## Drug-condition interactions

Drug-condition interactions happen when you have a medical condition that reacts with certain drugs. Nasal decongestants may constrict blood vessels even further in patients with high blood pressure, for example. And if you are allergic to certain substances, you may not be able to take some drugs. For example, patients with gluten may not be able to take some drugs that include gluten as a filler. This is also true for patients with decreased kidney or liver function, which may reduce the amount of drug that gets removed by these organs. Lastly, some genetic conditions may affect how fast drugs are metabolized, which might increase or decrease the drug's effects.

---

## Drug-supplement interactions



Drug-supplement interactions are when your medication reacts to herbal or dietary supplements. These interactions could have effects similar to drug-drug interactions.

---



## Drug-Drug Interactions

A drug-drug interaction typically involves what's known as a precipitant drug and an object drug. The object drug is the one with a therapeutic affect that is changed by the drug interaction. The precipitant drug is the one that affects the pharmacologic action of the object drug.

Common precipitant drugs — drugs that influence the action of other drugs — include nonsteroidal anti-inflammatory drugs and certain antibiotics. Common object drugs include warfarin, [fluoroquinolone antibiotics](#), antiepileptic drugs and oral contraceptives.

Some drugs act both as object drugs and precipitants.

The consequences of drug interactions are as diverse as the possible drug combinations. Nonsteroidal anti-inflammatory drugs taken at the same time as corticosteroids, anticoagulants or antiplatelets can increase the risk of gastrointestinal bleeding. Fluoroquinolones taken at the same time as corticosteroids can lead to increased risk of rupture of the Achilles tendon.

Some common drugs and examples of how they interact with other drugs, supplements and food:

## Antidepressants

The most widely prescribed class of antidepressants today is [selective serotonin reuptake inhibitors \(SSRIs\)](#). They work to elevate the serotonin levels in the brain, which is thought to ease the symptoms of depression.

One serious complication, serotonin syndrome, can occur when an SSRI interacts with other drugs that have similar effects, especially pain medications and other drugs for psychiatric illness. The onset of serotonin syndrome can occur within minutes and can be deadly if not treated immediately.

St. John's wort, a dietary supplement used to treat depression, can cause serotonin syndrome when it is combined with an SSRI. SSRIs also are known to interact with over-the-counter antihistamines, causing extreme drowsiness.

**Common SSRIs include:**



*Prozac*



*Zoloft*



*Paxil*



*Lexapro*

There are no proven interactions with food when a patient takes an SSRI. At least one study, however, suggests that eating kiwifruit, which has high natural levels of serotonin, can increase the effects of SSRIs on serotonin levels. Also, certain SSRIs can cause an upset stomach or heartburn if they are taken on an empty stomach.

## Blood Pressure Medication

Blood pressure-lowering medications include alpha blockers, angiotensin-converting enzyme inhibitors, angiotensin receptor blockers, beta blockers, calcium channel blockers, and diuretics. Approximately 33 percent of U.S. adults either have high blood pressure or [take blood pressure-lowering drugs](#). Blood pressure medications generally should not be taken with OTC decongestants such as pseudoephedrine, because decongestants may increase blood pressure. Also, because caffeine may increase blood pressure, some patients who take blood pressure-lowering medications may need to limit their consumption of caffeine-containing beverages such as coffee.

Diuretics such as hydrochlorothiazide (HCTZ) are commonly used to lower blood pressure. They work by helping the body remove excess water, but this could also affect electrolytes. Diuretics should not be taken with heart-rhythm medications because the

combination can lower potassium levels to the point that fatal cardiac arrhythmia can occur.

### FACT

Eating black licorice can have a negative effect on certain blood pressure prescriptions.

One food interaction has been documented for HCTZ. Glycyrrhizin — found in black licorice, some sweeteners and herbal teas — can have a negative effect on potassium levels, which can damage the heart.

## Proton Pump Inhibitors

Taking proton pump inhibitors, which reduce gastric acid, along with antibiotics can [increase the risk](#) of irregular heartbeat, which can be life threatening. A 2016 study found that taking the heartburn drug Prevacid (lansoprazole) at the same time as ceftriaxone, an antibiotic, can make it more likely that the patient will develop a dangerous, life-threatening condition called long QT syndrome, which can be fatal.

When [proton pump inhibitors are taken with antibiotics](#), there is a risk of [Clostridium difficile infection](#), a bacterium with symptoms from diarrhea to colon inflammation that can be life threatening.

### PPI INTERACTION INFORMATION

Proton pump inhibitors can have serious interactions with the blood thinner clopidogrel and with alcohol. Learn more about these and other PPI interactions.

[VIEW INTERACTIONS](#)

## Statins

Statins are a class of drugs that reduce cholesterol levels. Within this class, some statins pose a higher risk of drug interactions than others. Fluvastatin, pitavastatin, pravastatin, and rosuvastatin are less likely to have drug interactions than some other statins.

Drugs that can interact dangerously with different statins include gemfibrozil, cyclosporine, clarithromycin, azole antifungals, protease inhibitors and colchicine. Drinking alcohol while taking statins can increase the risk of liver damage.

## Muscle and Kidney Damage

One of the most common side effects of statins is muscle soreness. Mixing statins with certain drugs, dietary supplements or foods can damage muscles and even lead to kidney failure. For this reason, patients are advised not to mix statins with prescription oral fungal (yeast infection) medication or vitamin B complex.

## Warfarin

[Warfarin](#), a blood thinner, interacts with a number of other drugs and supplements. Some other medications increase the body's metabolism of warfarin and the risk of thrombosis, or the formation of blood clots.

### The drugs include these medications:

---

Phenytoin

Carbamazepine

Rifampin

Cholestyramine

Phenobarbital

On the opposite end of the spectrum, some drugs decrease the metabolism of warfarin, which increases the risk of bleeding.

### These drugs include:

---

Fluoroquinolone antibiotics

Trimethoprim/sulfamethoxazole, which are antibiotics

Macrolide antibiotics



Heartburn drugs such as Prevacid (lansoprazole), Prilosec (omeprazole) and [Zantac \(ranitidine\)](#).

## ZANTAC INFORMATION

Read about Zantac's interactions with warfarin and other drugs.

[LEARN MORE](#)

Other common drugs that interact with warfarin include simvastatin, acetaminophen, [prednisone](#) and [omeprazole](#). Some supplements also interact with warfarin, sometimes increasing the risk of bleeding. These include omega-3 fatty acids, garlic, ginkgo and saw palmetto.

Leafy green vegetables and other vegetables high in vitamin K can affect warfarin's ability to prevent clots. Cranberry juice and other cranberry products can also affect how warfarin works.



## Food-Drug Interactions

Certain foods can have an effect on the medication you take. This can prevent a drug from working the way it should, increase or decrease a side effect of the drug or cause a new side effect. Medicine can also affect how your body digests and processes food.

Some examples of different food and beverages and how they can affect certain drugs:

### Alcohol

According to the [National Institutes of Health \(NIH\)](https://www.nih.gov/), about 71 percent of adults in the United States drink alcohol. Alcoholic beverages can interact with a wide range of medications, including many that are commonly prescribed, and you should consult with your doctor or pharmacist about whether you can drink while taking your prescription drugs.

According to NIH research, 42 percent of adults who drink also use medications that are known to interact with alcohol. This is true for nearly 78 percent of people over 65.

For example, alcohol can add to side effects of some drugs. It can add to the drowsiness caused by antihistamines and it can cause liver damage if you take acetaminophen or other pain relievers and fever reducing medicines. The chance for severe liver damage increases if you drink three or more alcoholic drinks a day. Alcohol can also increase the chances of dangerous side effects with narcotic medications. These risks include coma and death.

ADVERTISEMENT

## **STATINS AND NITRATES**

Avoid alcohol if you are taking statins because it increases the chance of liver damage. Drinking alcohol while taking nitrates, which are given for angina (chest pain), may add to the nitrate's blood-vessel-relaxing effect and dangerously lower blood pressure.

Refrain from drinking alcohol if you're using theophylline, which is given for asthma. The two taken together can increase the chance of nausea, vomiting, headache and irritability.

## ANTIBACTERIAL AND PSYCHIATRIC DRUGS

Drinking alcohol while taking the antibacterial metronidazole or up to a day after finishing the medication can cause nausea, stomach cramps, vomiting, flushing and headaches.

The antifungal griseofulvin can make the effects of alcohol worse. Together, they can cause a fast heartbeat and flushing.

Alcohol can also add to the side effects, like drowsiness, of certain psychiatric medications, including antipsychotics, antidepressants and sleep medications.

## Caffeine

Ingesting caffeine when using bronchodilators can increase the chance of side effects such as excitability, nervousness and rapid heartbeat. Because caffeine may increase blood pressure, it may also reduce the effects of blood pressure-lowering medications.

## Grapefruit Juice

Grapefruit juice contains compounds known as furanocoumarins, which change the effects of some drugs. These compounds are not present in other citrus juices. Consequently, [grapefruit juice](#) can affect how the body metabolizes drugs, changing the level of the medication in the blood.

### Drugs that may be affected by grapefruit juice include:

---

Antihistamines

Blood pressure medications

Thyroid replacement drugs

Birth control

Antacids

Dextromethorphan (cough suppressant)

If you drink more than a quart of grapefruit juice a day, it can increase the levels of certain statins, but not all statins, in your body and raise the chance of side effects.

## Leafy Green Vegetables

Leafy green vegetables are high in vitamin K and can lower the ability of warfarin to prevent clots. Warfarin works by blocking clotting factors that are dependent on vitamin K.

### **FACT**

Although nutritionists recommend including leafy green vegetables in a healthy diet, you should be aware that they can interact with some prescription drugs.

Foods high in vitamin K include broccoli, cabbage, collard greens, spinach, kale, turnip greens, and Brussels sprouts.

Leafy vegetables also are high in potassium, as are bananas, oranges and salt substitutes. Taking ACE inhibitor drugs and certain diuretics can increase the amount of potassium in your body. Too much potassium can harm you, leading to irregular heartbeat and rapid heartbeats, also known as palpitations.



## Drug-Supplement Interactions

On average, Americans spend more than \$28 billion each year on dietary supplements. In 2021, people in the U.S. spent nearly \$50 billion on dietary supplements. These include vitamins, minerals, herbal and other substances that are purchased over the counter at drug stores, grocery stores and health nutrition stores.

According to a survey of people aged 50 and over by the [American Association of Retired Persons](#), 59 percent of respondents had used supplements the previous month, and 52 percent took them almost daily.

A [study published in JAMA](#) in 2016, found that older adults are using more and more supplements. Researchers found an increase of almost 50 percent in the use of multiple

supplements, despite, the author wrote, "no evidence of any clinical benefits."

Some of these supplements can change how the body absorbs, metabolizes or excretes drugs and they may have an effect on how potent the drug is. But research on herb-drug interactions has not been rigorous, and information is mostly inferred from sources such as animal studies and other indirect means.

Still, experts have compiled information about some common supplements and their effect on different prescription medications. Here are a few examples:

## Calcium

Calcium supplements may reduce the effectiveness of some drugs, including antibiotics, such as fluoroquinolones and tetracyclines, calcium channel blockers, osteoporosis drugs and thyroid drugs. Calcium may increase the risk of kidney damage by increasing calcium blood levels when taken with antihypertensives including thiazide diuretics and it may increase the effects of digoxin.

## Fish Oil

Taking fish oil may reduce the effectiveness of some cancer drugs and may increase the effects of blood pressure medications and blood thinners.

## Garlic

Garlic is sometimes taken in the belief that it can treat high cholesterol, heart disease and high blood pressure. The high doses of garlic contained in supplements can act as a blood thinner. This can be dangerous when taking blood-thinning medications and



may increase the risk of excessive bleeding. There is some evidence that garlic may affect the body's metabolism of the HIV antiviral drug saquinavir, but that risk appears to be low.

Taking garlic in supplement form may also reduce the effectiveness of birth control pills, HIV/AIDS drugs, cyclosporine and isoniazid for tuberculosis.

## Ginkgo Biloba

This herbal supplement can also thin the blood. Taking it with other substances that have that effect, such as aspirin, vitamin E and warfarin, may increase the risk for internal bleeding or stroke. Ginkgo and ginseng can also have dangerous interactions with certain psychiatric medications, including those given for anxiety. It can reduce the effectiveness of drugs including anticonvulsants, [diabetes drugs](#) and HIV/AIDS drugs.

### FACT

Combining the supplement ginkgo biloba with some prescription drugs may increase the risk of internal bleeding or stroke.

## St. John's Wort

This herbal supplement can make certain drugs less effective. These drugs include medications for HIV/AIDS, heart disease, depression, organ transplants and birth control.

If you are taking digoxin, avoid combining it with St. John's wort, which may decrease the amount and action of digoxin in your body.



## How to Avoid Drug Interactions

When you get a new prescription, you should ask your doctor or pharmacist some questions:

1. Can I take it with other drugs and supplements?
2. Should I avoid certain food or drinks?
3. What signs of possible interactions should I be aware of?
4. How does the drug work in my body?
5. Where can I get more information about this drug or my condition?

## Drug Labels

You should also make sure your doctor and pharmacist know about vitamins and supplements you take, and read the information provided by the pharmacy with your prescription. Carefully read the drug interaction precaution information.

It's best if you can obtain all your prescriptions from a single pharmacy, which can keep track of all your medications and flag possible interaction issues.

### FACT

One way to avoid dangerous drug interactions is to fill your prescriptions at the same pharmacy.

## Medication List

It is extremely important to keep a complete list of all your medications and bring that list to every medical appointment to help your doctor check for possible drug interactions. It's probably wise to carry the list with you at all times. In addition to the name of the medication, you should include the size of the dose (in milligrams, milliliters, or other measurement) and how often you take the drug. You should also ask your doctor and your pharmacist whether there is a chance of drug interactions.

## Online Tools

The U.S. Food and Drug Administration has a tool you can find [here](#) to help you create a record to keep track of your medicines and dietary supplements.

The AARP also has an [interaction checker](#) where you can enter the name of a drug or pick from a list of common drugs and it will give you possible interactions to be alert for.

## AVOIDING INTERACTIONS

Your doctor or pharmacist can take steps to address possible drug interactions.

### These steps may include:

---

Avoiding certain drug combinations because they are too risky.

Adjusting the dose of one or both of the interacting drugs.

Spacing the times between taking drugs that interact with each other. For example, certain object drugs may need to be taken at least two hours before or four hours after the precipitant drug, allowing the object drug to be absorbed by the body before the precipitant drug is introduced.

Monitoring for side effects through laboratory tests or close observation, adjusting dosages as necessary.

ADVERTISEMENT

---

 Please seek the advice of a medical professional before making health care decisions.

SHARE THIS PAGE:






---

— — — — —

TELL US WHAT YOU THINK  
Did You Find Drugwatch Helpful?

**WRITTEN BY**[Elaine Silvestrini](#)*Writer*

Elaine Silvestrini is an award-winning journalist with 30 years of experience covering state and federal court systems. She joined Drugwatch in 2017. Her coverage for Drugwatch has been cited in the CDC's Public Health Law News and the USA Today Network. Some of her qualifications include:

-  Centers for Disease Control and Prevention certificates in Health Literacy
-  Experience as an assistant investigator for the Federal Public Defender
-  Loyola Law School Journalist Law School Fellowship

**EDITED BY**[Kevin Connolly](#)*Editor***MEDICALLY REVIEWED BY**[Ryan Rodriguez, Pharm.D., BCPS](#)*Medical Liaison*

## 20 Cited Research Articles

*Drugwatch.com writers follow rigorous sourcing guidelines and cite only trustworthy sources of information, including peer-reviewed journals, court records, academic organizations, highly regarded nonprofit organizations, government reports and interviews with qualified experts. Review our [editorial policy](#) to learn more about our process for producing accurate, current and balanced content.*

[VIEW SOURCES](#)



### Subscribe to Our Newsletter

Join our newsletter to stay up to date on dangerous drugs and devices, keep up on lawsuit and settlement news, learn about FDA recalls, and more.

[SIGN UP NOW →](#)

#### NAVIGATE

[FAQ](#)

[Lawsuits](#)

[FDA](#)

[News](#)

[Drugs](#)

[Health Info](#)



[Devices](#)[Side Effects](#)[Drugwatch Podcast](#)[Beyond Side Effects](#)

Keep people safe from potentially harmful drugs, medical devices and procedures by informing them of medical conditions, severe side effects and ways to take action.

**MORE ABOUT US** →

☎ **(888) 645-1617**

👤 Who Am I Calling?



Drugwatch is located at:

**1 South Orange Ave, Suite 201, Orlando, FL 32801**

The information on this website is proprietary and protected. It is not a substitute for advice, diagnosis, treatment and other oversight responsibilities for disease processes by a credentialed physician. Any unauthorized or illegal use, copying or dissemination will be prosecuted. Please read our disclaimer for more information about our website.

Drugwatch.com partners with law firms. This website and its content may qualify as attorney advertising. Prior results do not predict a similar outcome. For more information, visit our partners page.

© 2024 Drugwatch.com Privacy Policy / Advertising Disclosure / Do Not Sell My Info