

How Your Supplements Interact With Prescription Drugs

St. John's Wort, lavender, garlic and others can alter drug potency, cause side effects



Millions of people consume supplements that may impact the way the prescription drugs they also take are metabolized by the body.



By Laura Landro, The Wall Street Journal
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As millions of Americans consume over-the-counter herbal and botanical supplements in a bid to boost health, there is increasing evidence that these products can interfere with a wide range of prescription medications used to treat everything from cancer to depression to high blood pressure.

Recent studies have found that a greater number of supplements than previously thought may affect the way certain enzymes in the body metabolize drugs. Some supplements may inhibit the enzymes' ability to break down a drug and clear it from the body, causing medication to build up to potentially toxic levels and even cause overdose. Other supplements may increase the rate at which a drug is broken down, clearing it from the body too quickly to be effective.

Botanicals, for example, can interfere with drug-metabolizing enzymes in the liver, stomach and intestines and proteins in the blood that can alter the way drugs are distributed throughout the body.

Researchers at the University of Minnesota in Minneapolis are exploring interactions between cancer drugs and dietary supplements, based on data extracted from 23 million scientific publications, according to lead author Rui Zhang, a clinical assistant professor in health informatics. In a study published last year by a conference of the American Medical Informatics Association, he says, they identified some that were previously unknown.



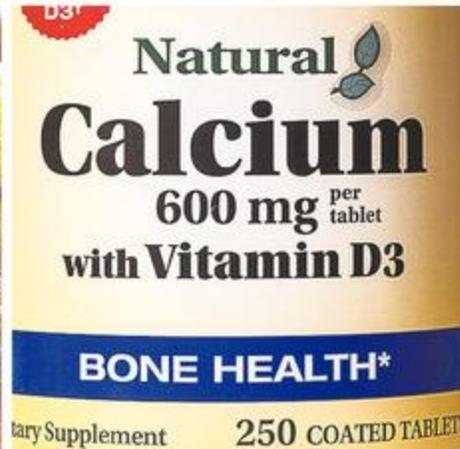
ACAI

PURPORTED BENEFITS

Aids people with cancer, heart disease, autoimmune disorders, or allergies.

UNINTENDED CONSEQUENCES

May interfere with certain chemotherapy drugs.



CALCIUM

PURPORTED BENEFITS

Prevents osteoporosis and cancer.

UNINTENDED CONSEQUENCES

May reduce absorption of osteoporosis medication, certain antibiotics, and thyroid medication.



ECHINACEA

PURPORTED BENEFITS

Fights the common cold and viral infections.

UNINTENDED CONSEQUENCES

May reduce the effectiveness of drugs including breast cancer drug tamoxifen and antivirals.

Source: Memorial Sloan Kettering Cancer Center

For example, the herb Echinacea, often taken in the belief it boosts immunity and wards off colds, is already known to affect the way certain chemotherapy drugs work. But the researchers also identified a possible interaction with a breast cancer drug that could reduce its effectiveness.

Kava, which is used to treat sleep problems and relieve anxiety and stress, can potentially reduce the effectiveness of a breast cancer drug as well. And the researchers found that grape seed extract, which is used for some cardiac conditions, can potentially increase side effects of the cancer drug.

Philip Gregory, an associate professor of pharmacy and director of the Center for Drug Information and Evidence-Based Practice at Creighton University in Omaha, Neb., says many patients who are admitted to intensive care units have supplements circulating in their system that can interact with drugs and cause bleeding, liver, heart and nervous system complications, so it is important to ask about supplements in medical history-taking.

The National Center for Complementary and Integrative Health, part of the National Institutes of Health, is funding a number of programs around the country to study potential adverse interactions that can occur between so-called natural products and prescription drugs, over-the-counter drugs such as aspirin and even small molecules in food. The risks are especially high for cancer and surgery patients and those on heart

and blood-thinner medications, which have what's known as a "narrow therapeutic range," or small differences between beneficial and toxic doses.



GINGKO

PURPORTED BENEFITS

Helps with asthma, heart disease, memory loss & sexual dysfunction.

UNINTENDED CONSEQUENCES

May amplify anti-depressants, may alter insulin secretion and affect blood-sugar levels.



TURMERIC

PURPORTED BENEFITS

Prevents cancer, treat infections, and reduce inflammation.

UNINTENDED CONSEQUENCES

May lessen the effects of blood-pressure medication and inhibit effectiveness of some cancer drugs.



LAVENDER

PURPORTED BENEFITS

Helps anxiety, depression, insomnia, pain and spasms.

UNINTENDED CONSEQUENCES

May enhance the effects of sedatives and increase the risk of bleeding with anticoagulants.

Source: Memorial Sloan Kettering Cancer Center

Prescription medications can also interfere with each other, but the Food and Drug Administration requires drug companies to disclose information on potential interactions as part of its drug approval process. In contrast, the supplement industry is more loosely regulated, with no requirements to investigate the risks of taking them along with drugs. Supplements can vary widely in quality and dosage, and have sometimes been found to be adulterated with other potentially dangerous substances which can also interfere with drugs.

According to the Council for Responsible Nutrition, a trade group for the \$32 billion supplement industry, 68% of adults take dietary supplements. Though the group says its surveys show the majority let their doctors know about the use of supplements, other studies show as many as 70% of patients don't inform their physicians. And doctors may not ask about the use of over-the-counter supplements, purchased online and in retail stores, when taking a medical history.

More than half of patients with chronic diseases or cancer use herbs and dietary supplements and many take them at the same time as prescription medication, studies have found.

“Our greatest concern is making cancer patients aware that some of these herbs can increase the toxicity of the drugs, or make them less effective,” says K. Simon Yeung, a doctor of pharmacy and herbalist at Memorial Sloan Kettering Cancer Center in New York. Dr. Yeung manages a Sloan Kettering website, About Herbs, and an app doctors and patients can use to search for potential interactions between dietary supplements and prescription drugs.



ST. JOHN'S WORT
PURPORTED BENEFITS

Relieves depression, fatigue, insomnia, and pain.

UNINTENDED CONSEQUENCES
May reduce effectiveness of contraceptives, HIV/AIDS drugs and anti-rejection drugs.



ALFALFA
PURPORTED BENEFITS

Heals burns and cold sores. Aids colitis and diabetes treatment.

UNINTENDED CONSEQUENCES
May interfere with contraceptives and hormonal therapy.



GARLIC
PURPORTED BENEFITS

Aids the treatment of high cholesterol and high blood pressure.

UNINTENDED CONSEQUENCES
May interfere with absorption of medications and require insulin dosage adjustment.

Source: Memorial Sloan Kettering Cancer Center

Some of those interactions are already widely recognized. For example, St. John's Wort, which is widely taken for depression, has been found to increase side effects if taken with antidepressants. The herbal supplement can also interfere with the effectiveness of hormonal contraceptives and HIV/AIDS medications. It can also reduce the levels of anti-rejection drugs in organ transplant patients by 70%, jeopardizing the body's ability to keep the organ.

Used in small quantities, such as in cooking, herbs are generally safe, Dr. Yeung notes. But when concentrated in pills and capsules and taken in large amounts over time, they can have adverse effects, such as reports of postoperative hemorrhage associated with the use of garlic.

According to Malcolm Taw, director of the UCLA Center for East-West Medicine-Westlake Village in Los Angeles, popular supplements known as the four Gs—ginger, garlic, ginseng and ginkgo—can interact with a number of medications, such as increasing the risk of bleeding in patients on blood thinners. For any patient preparing

for elective surgery, he advises suspending use of supplements at least one or two weeks beforehand.

Dr. Taw recommends that instead of taking supplements, patients eat foods rich in certain compounds that have potential benefits. For example, lab studies have suggested a natural compound, quercetin, has cancer-fighting properties, and combined with green tea could help make a chemotherapy drug used in prostate cancer more effective. But in supplement form, quercetin can also potentially interfere with medications including antibiotics, and human studies are lacking. Dr. Taw suggests eating more apples and onions, which contain quercetin.



MAGNESIUM

PURPORTED BENEFITS

Prevents asthma, migraines, heart disease, fatigue and helps bone development.

UNINTENDED CONSEQUENCES

May reduce absorption of antibiotics and increase absorption of blood thinners.



RED CLOVER

PURPORTED BENEFITS

Relieves symptoms of menopause and stop muscle spasms.

UNINTENDED CONSEQUENCES

May increase the effects of blood thinners .



SAW PALMETTO

PURPORTED BENEFITS

Inhibits prostate cancer growth and promote urination.

UNINTENDED CONSEQUENCES

May increase effects of blood thinners and side effects from non-steroidal anti-inflammatory drugs.



FENUGREEK

PURPORTED BENEFITS

Used to help cancer treatment, high cholesterol, inflammation and infections.

UNINTENDED CONSEQUENCES

May increase the effects of blood thinners.

Source: Memorial Sloan Kettering Cancer Center

With funding from the NIH, researchers at the UIC/NIH Center for Botanical Dietary Supplements at the University of Illinois in Chicago are focusing on health for women, especially those over 55 who are the largest consumers of botanicals. Many use supplements such as licorice, hops and red clover to relieve menopause symptoms as an alternative to hormone drugs, according to Richard van Breemen, the center's director.

The center plans to start the first of three human trials in July to explore how the supplements may interact with prescription medications women take for other health issues such as high blood pressure and cholesterol.

In a review published in the February issue of the journal Drug Metabolism and Distribution, Dr. van Breemen and Alyssa Sprouse, program manager at the University of Illinois research center, found that clinical studies of some botanicals, such as milk thistle, that were predicted to interact with drugs were found not to be problematic. That may be in part because the body didn't absorb the supplement in large enough quantities to affect a drug's metabolism, Dr. Sprouse says.

To avoid expensive trials in humans of substances that show no adverse effects, the University of Illinois team is using mathematical models to help identify which predicted drug-supplement interactions warrant study in humans.

Ryan Terlecki, director of the men's health clinic at Wake Forest Baptist Health in Winston-Salem N.C. says some of his prostate cancer patients take supplements to deal with side effects of treatment and to prevent recurrence. He says he respects their desire to try something natural, but he also advises them that "when you are trying for a cure, you don't want anything that is going to inhibit that."

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