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## Dietary Supplements

If you are thinking about using dietary supplements to promote health or support your cancer treatment, be sure to learn as much as you can before you decide. The information here will help you learn more about dietary supplements so you can make a more informed decision about using them safely.

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## What Are Dietary Supplements?

- [How are dietary substances supplements different from medicines?](#)
- [Regulations for dietary supplements](#)

## How are dietary substances supplements different from medicines?

Dietary supplements don't have the same strict safety and effectiveness requirements that medicines do. In the United States, all the medicines you can buy, even without a prescription, must be proven safe and effective, but dietary supplements do not have to be.

All prescription and non-prescription medicines are regulated in the US by the Food and Drug Administration (FDA). But dietary supplements are treated more like special foods.

In general, the FDA considers new medicines to be unsafe until they are proven safe in [clinical trials](#)<sup>1</sup>. New medicines must go through a lot of testing to prove that they are safe and effective before being approved for use by the FDA. And the FDA must approve any new medicine before it can be legally sold in the US.

On the other hand, a dietary supplement can be sold without having to prove it is safe and effective first, as long as the maker doesn't claim it can treat, diagnose, prevent, or cure a disease (in which case the FDA would consider it to be a drug).

Supplements cannot contain anything that poses a known risk of illness or injury when used as directed on the label, or with normal use if there are no directions on the label. The FDA can stop a company from selling a supplement if it has been found to be unsafe, but only after the FDA gets reports that the supplement has caused harm.

## Regulations for dietary supplements

Although supplements are not required to go through clinical trials, companies that make them are supposed to:

- Have data showing the products are safe
- Make sure that the details on product labels are truthful
- Avoid making false claims
- Correctly show what is in the supplement

Companies that make dietary supplements must also follow Good Manufacturing Practices (GMPs). The GMPs state that dietary supplements must:

- Be produced in a quality manner
- Not contain any contaminants or impurities
- Be labeled with the ingredients that are actually in the product

The FDA watches for reports of illness, injury, or reactions to supplements. All supplement makers are supposed to report harmful effects to the FDA. The FDA also wants consumers to report reactions or other problems with supplements.

The FDA also watches for products on the market that make false claims or contain ingredients known to not be safe. The federal government can act against companies that make false claims about their products or if the supplements are found to be unsafe.

## Hyperlinks

1. [www.cancer.org/cancer/managing-cancer/making-treatment-decisions/clinical-trials.html](http://www.cancer.org/cancer/managing-cancer/making-treatment-decisions/clinical-trials.html)

## Additional resources

### **Supplement Your Knowledge: Dietary Supplement Education Initiative**

Website: [www.fda.gov/food/information-consumers-using-dietary-supplements/supplement-your-knowledge](http://www.fda.gov/food/information-consumers-using-dietary-supplements/supplement-your-knowledge)

This site includes fact sheets and videos about dietary supplements for the public, educators and healthcare professionals. Materials for the public are available in English and Spanish.

## References

Food and Drug Administration. Dietary Supplements. Last updated 8/16/2019. Accessed at <https://www.fda.gov/food/dietary-supplements> on May 12, 2021.

Harvie M. Nutritional supplements and cancer: Potential benefits and proven harms. *Am Soc Clin Oncol Educ Book*. 2014:e478-86.

National Center for Complementary and Integrative Health. Dietary and Herbal Supplements. Last updated February 2020. Accessed at <https://www.nccih.nih.gov/health/dietary-and-herbal-supplements> on May 27, 2021.

Office of Dietary Supplements, National Institutes of Health. What You Need to Know: Dietary Supplements. Accessed at <http://ods.od.nih.gov/HealthInformation/> on May 11, 2021.

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## Are Dietary Supplements Safe?

Used properly, certain dietary supplements may help reduce the risk of some diseases. Some might also reduce discomfort caused by certain conditions or medicines, or they might help you feel better, which can improve your quality of life. Most people can use dietary supplements safely, as long as they don't take too much. But dietary supplements are not totally safe, and taking them can have risks, especially for people who are getting cancer treatment.

- [Risks and side effects of dietary supplements](#)
- [Special concerns for people being treated for cancer](#)
- [Why it's hard to tell if dietary supplements are safe and effective](#)
- [Common misconceptions about dietary supplements](#)

### Risks and side effects of dietary supplements

Dietary supplements, herbal preparations, and homeopathic treatments caused almost 70,000 calls to US poison control centers in 2019. Of these calls, more than 7,000 people needed treatment at health care facilities. More than 800 of these cases led to moderate to severe outcomes. However, most people who have side effects, illnesses, or drug interactions from dietary supplements don't call a poison control center or the supplement manufacturer. This means that the numbers we have are likely lower than what actually happens.

Side effects from dietary supplements happen most often if people take high doses or use them instead of medicines prescribed by their health care provider.

Some supplements can also cause problems if taken along with certain medicines. For example:

- Antioxidants, such as vitamins C and E, might make some chemotherapy medicines less effective.
- Vitamin K can make the blood thinner warfarin less effective and increase the risk of blood clotting.
- St. John's wort can make certain medicines less effective. Some examples are birth control pills and medicines for depression, heart problems, HIV, and cancer.

Taking many different supplements can increase the risk of side effects and drug interactions.

## Special concerns for people being treated for cancer

There are several ways that supplements can cause problems for people during cancer treatment. For example:

- Some dietary supplements can cause skin sensitivity and severe reactions when taken during **radiation treatment**. If you are getting radiation treatments, talk to your doctors before taking any supplement.
- For people who need **surgery**, some supplements may react with medicines used during and after surgery or might increase the risk of certain side effects such as bleeding and infection. Others might affect the way the heart and brain work, which might lead to complications during and after surgery. Let your doctor know what supplements you are taking before you have surgery.
- People getting **chemotherapy (or other cancer medicines)** may be at higher risk for side effects if they take some dietary supplements. Some supplements can interfere with how the body breaks down these drugs, which can make them less effective or increase side effects.

Because of these concerns, many cancer experts advise people to avoid dietary supplements while getting cancer treatment. But if you decide to take supplements, be sure to discuss this with your doctor or cancer care team. They can help you understand whether or not a particular product might be safe for you.

## Why it's hard to tell if dietary supplements are safe and effective

Like medicines, dietary supplements have risks and side effects. But unlike medicines, most people choose which dietary supplements to take without discussing them with their doctor, nurse, or pharmacist.

Much of what you hear or read about dietary supplements is based on anecdotal evidence. Anecdotal evidence is based on a person's (even a doctor's) personal experience or opinion, rather than research. Be skeptical of sources that make big claims based on a few people's testimonials or vague references to "scientific proof." The rule "if it sounds too good to be true, it probably is" usually applies to such claims. And keep in mind that the makers and sellers of supplements have a financial interest in promoting their products.

### **Dietary supplement advertising and promotion**

Supplement makers do not have to get approval from the FDA to sell their products. The FDA does watch for products that may be unsafe or make false or misleading claims, but they can only do this after the product is already on the market. As its resources permit, the FDA looks at supplement labels and other information, such as package inserts, claims, and online ads. But it cannot review all of the many products on the market today.

And remember - no matter what a supplement maker claims, dietary supplements are not intended to treat, diagnose, cure, or relieve the effects of diseases.

To avoid unsafe supplements, don't buy:

- Products that claim to work like prescription medicines – anything that claims to treat an illness or cure a medical condition
- Products that are advertised through mass e-mails
- Products that promise weight loss, body-building, or enhanced sexual performance
- Products that say they are a legal alternative to anabolic steroids

### **Possible quality issues with some dietary supplements**

Many dietary supplements are made under careful conditions and labeled correctly. But others are not made as carefully. Some companies don't follow the FDA's rules about making claims and labeling supplements correctly. In some cases, when herbal supplements have been tested, they have been found to contain very little or none of the listed ingredient. Some even contain chemicals that could be harmful to certain people. And some supplements contain a larger dose than the label lists. Serious

illnesses and even deaths have resulted from these kinds of problems.

## **Common misconceptions about dietary supplements**

### ***"Natural is safer and better"***

It is a common belief that natural is safer or better than man-made or refined substances. Not only is this not always true, but some natural products can be harmful even if used as directed. For instance, comfrey and kava can harm the liver.

Botanical supplements (such as garlic, ginger, ginkgo biloba, echinacea, and others) are made of plant material, so many of them are sold as “natural” products. But plants themselves are made up of many chemicals. Even different parts of the same plant can contain different chemicals. Some of these might be helpful, while others might be poisonous or cause allergies in humans. Botanicals that are marketed as “all natural” are not always the most helpful ones since they may not be refined to remove potentially harmful chemicals. Natural products can also be grown under different conditions (such as in different soils), which might also affect the levels of some chemicals. This can make it harder to control exactly what's in the final product.

### ***"More is better"***

Some people believe that mega-doses of certain vitamins can prevent or cure diseases. However, no scientific studies have proven this to be true. In fact, large doses of some vitamins or minerals can be dangerous and even harmful. For example, the body cannot get rid of large doses of vitamin A. It can reach toxic levels when too much is taken, which can damage organs and interfere with certain medicines.

Talk with your health care team before taking large doses of any vitamin, mineral, or other supplement. Your doctor, nurse or pharmacist should be able to help you find information on safe dosages.

### ***"It's been used for hundreds/thousands of years, so it must work"***

Knowing that a botanical has been used in folk or traditional medicine for many years can be helpful, but it is not proof that it works or that it's safe. If small amounts of a plant caused painful or life-threatening side effects right away, it probably wouldn't have been used for very long. But in the distant past, scientific methods weren't used to look for possible long-term side effects. So, if a plant seemed useful over the short term but actually increased the risk of a chronic disease (like cancer, heart failure, or kidney failure), that side effect likely would not have been noticed.

Also remember that most herbs, plants, and other methods were used in traditional medicine systems to reduce symptoms or make the person feel better. This was helpful to people who were likely to recover anyway. But if a person died, it was accepted that death was a possible outcome of most serious illnesses.

Finally, keep in mind that many of these methods were used in the distant past because they were the best option available at the time, as more effective treatments had not yet been developed.

### ***"It can't hurt to take supplements along with my regular medicines"***

Many people assume that it is safe to take dietary supplements along with prescription medicines. **This is not always true.** For example, certain dietary supplements can block or speed up the body's ability to break down some medicines. This can cause a person to have too much or too little of the medicine in their bloodstream. Most medicine companies and producers of herbal supplements do not research possible medicine interactions, so the risks of taking supplements with other medicines are largely unknown.

Talk with your health care team about any supplements you are taking or are thinking about taking. Your doctor or pharmacist can tell you about any known interactions with medicines you may be taking. Keep in mind that with new medicines and supplements, interactions may not yet be known.

## **Additional resources**

### **Supplement Your Knowledge: Dietary Supplement Education Initiative**

Website: [www.fda.gov/food/information-consumers-using-dietary-supplements/supplement-your-knowledge](http://www.fda.gov/food/information-consumers-using-dietary-supplements/supplement-your-knowledge)

This site includes fact sheets and videos about dietary supplements for the public, educators and healthcare professionals. Materials for the public are available in English and Spanish.

## **References**

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## Talking with Your Doctor About Dietary Supplements

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taking any new dietary supplement . If you have been taking supplements and want to keep taking them, it's important that your doctor knows this, too.

Gather as much information as you can on the dietary supplement you are thinking about using. Then, talk with your cancer care team about it. Ask for their professional opinion as to whether taking the supplement is safe and medically sound. Also ask how it might be safely used along with your cancer treatment.

When talking to members of your cancer care team about using supplements, ask them:

- Could the supplement provide me with some benefit?
- Is it safe for me to take this supplement?
- Could the supplement cause problems with my cancer treatment or other medicines I'm taking?
- If I can take the supplement, how much should I take? How often should I take it? How long can I take it?
- What side effects should I watch for?

Remember to make sure that your doctors know about all other medicines, vitamins, and supplements you're already taking, as well. Some supplements can interact with your cancer treatment. For example, antioxidant supplements, such as vitamins C and E, might reduce the effectiveness of some chemotherapy or radiation treatments.

## **Additional resources**

### **Supplement Your Knowledge: Dietary Supplement Education Initiative**

Website: [www.fda.gov/food/information-consumers-using-dietary-supplements/supplement-your-knowledge](http://www.fda.gov/food/information-consumers-using-dietary-supplements/supplement-your-knowledge)

This site includes fact sheets and videos about dietary supplements for the public, educators and healthcare professionals. Materials for the public are available in English and Spanish.

## **References**

Office of Dietary Supplements, National Institutes of Health. What You Need to Know: Dietary Supplements. Accessed at <http://ods.od.nih.gov/HealthInformation/> on May 11, 2021.

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# Choosing and Using Dietary Supplements Wisely

- [Understanding the claims on dietary supplement labels](#)
- [Tips for choosing and using dietary supplements safely](#)
- ↓ [Finding trustworthy information about dietary supplements\\*](#)

## Understanding the claims on dietary supplement labels

Before you buy a dietary supplement, read the label carefully. Look at the claims, packaging, ingredients, and directions for use. It can be easy to misread the claims that are being made about products.

The makers of dietary supplements are allowed to make 3 kinds of claims on the labels of their products (or in their advertising):

**Nutrient content claims:** These are statements about the amount of a nutrient contained in a product. For example, the product label may state that a supplement is 'high in calcium', 'a good source of calcium', or 'contains 10% of the Daily Value for calcium'.

- Other non-disease claims (“helps you relax”)
- Claims for common conditions and symptoms (“reduces irritability, bloating, and cramping associated with premenstrual syndrome”)

Structure or function claims are not reviewed by the FDA. In fact, labels with these types of claims must include the disclaimer “This statement has not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure, or prevent any disease.”

It’s easy to misunderstand structure or function claims. For example, many people believe that a statement like “helps maintain a healthy prostate gland” means the product has been proven to prevent or treat diseases like prostate cancer. This is not the case.

Don’t assume that because a product claims to support or promote healthy body function that it prevents or reduces the risk of any disease, including cancer.

Unlike the case with medicines, **supplement makers cannot claim that their product can treat, diagnose, prevent, or cure diseases.** For example, they can't say the supplement “reduces arthritic pain” or “treats heart disease.” Claims like these can only be made for medicines (drugs) that have been proven to do what they claim. Making such a claim automatically makes the product a drug, which would then be required to have the same proof of safety and effectiveness that the FDA requires for all drugs.

### Seals of quality assurance

There are several organizations that provide quality testing and allow products to show a seal of quality assurance if they pass specific tests. This seal usually means that quality standards were used when making the product. They also test to be sure the ingredients listed on the label are actually in the product and that it doesn’t contain any contaminants or harmful chemicals.

Examples of organizations that offer quality testing are\*:

- US Pharmacopeia
- NSF International
- ConsumerLab.com

*\*Inclusion on this list does not imply endorsement by the American Cancer Society.*

## Tips for choosing and using dietary supplements safely

- **Investigate before you buy or use.** There are many resources in libraries and online. Look past the information that comes from the makers of the products, which can sometimes be biased or misleading. Find materials from reliable third parties, such as researchers or government agencies. (See the “Finding trustworthy information about dietary supplements” section for some places to start.)
- **Consider the name and reputation of the manufacturer or distributor.** Dietary supplements made by nationally known food or drug manufacturers are more likely to be made using tight quality controls because these companies have a reputation to uphold.
- **Check with your doctor or other health care provider before you try a supplement.** While your doctor might not know about all the products available, they may be able to tell you what isn’t safe.
- **Make sure that the label provides a way to contact the company if you have questions or concerns.** Reputable manufacturers will give contact information on the label or packaging of their products.
- **Avoid products that claim to be “miracle cures,” “breakthroughs,” or “new discoveries.”** Also avoid supplements that claim to have benefits but no side effects or are based on a “secret ingredient” or method. Such claims are almost always fraudulent, and the product may contain harmful substances, drugs, or contaminants.
- **Avoid products that claim to treat a wide variety of unrelated illnesses.** If a supplement claims that it can diagnose, treat, cure, or prevent disease, such as “cures cancer,” or “stops tumor growth,” the product is being sold illegally as a drug.
- **Try to avoid mixtures of many different supplements.** The more ingredients, the greater the chances of harmful effects. Mixtures also make it harder to know which substance is causing any side effects.
- **Start only one product at a time.** Note any side effects you have while taking the product. If you have any side effects, stop taking the supplement. Report the side effects to your doctor, and be sure to report any serious ones to the FDA.
- **If you have any surgery or procedure planned, including dental surgery, talk with your surgeon about whether you need to stop taking supplements.** Some supplements need 2 to 3 weeks to completely leave your body, and a few can cause serious problems during or after an operation.
- **If you are pregnant or breastfeeding, take only dietary supplements prescribed or approved by your doctor.** Few dietary supplements have been studied for safety, so their effects on a growing fetus or infant are largely unknown.

- **Talk with your doctor before taking any self-prescribed remedies instead of medicine prescribed for you.**
- **Do not depend on any non-prescription product to cure cancer or any other serious disease.** No matter what the claim, if it sounds too good to be true, it probably is.
- **Follow the dosage limits on the label.** Taking too much might cause harm or even death. And do not take a dietary supplement for any longer than recommended.
- **Never give a supplement to a baby or a child under the age of 18 without talking to the child's doctor.** The effects of many products in children are not known.

## Finding trustworthy information about dietary supplements\*

There's a lot of misleading information out there. Even for those who are usually well informed, it can be hard to find reliable information about the safe use and potential risks of dietary supplements.

Along with the American Cancer Society, other sources of reliable information include:

**National Cancer Institute's Office of Cancer Complementary and Alternative Medicine** Website: <https://cam.cancer.gov><sup>1</sup> Offers in-depth information about complementary and alternative therapies with a focus on cancer. Includes sections on talking to your healthcare provider about CAM, information about specific therapies, and frequently asked questions.

### **National Institutes of Health's Office of Dietary Supplements**

Website: <https://ods.od.nih.gov><sup>2</sup> Provides information about wise supplement use and detailed fact sheets about individual vitamins and supplements. Also has an app you can use to keep up with supplements on your smart phone; choose My Dietary Supplements Mobile App on the left menu bar.

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supplements, and more, for consumers and health care professionals. Also offers the About Herbs mobile app for free.

**US Food and Drug Administration – Dietary Supplements Website:**

<https://www.fda.gov/food/dietary-supplements><sup>6</sup> Includes information about labels, rules, regulations, and more about dietary supplements. Includes information about reporting problems with dietary supplements.

*\*Inclusion on this list does not imply endorsement by the American Cancer Society.*

## Hyperlinks

1. [cam.cancer.gov](http://cam.cancer.gov)
2. [ods.od.nih.gov](http://ods.od.nih.gov)
3. [www.nccih.nih.gov](http://www.nccih.nih.gov)
4. [www.mskcc.org/cancer-care/diagnosis-treatment/symptom-management/integrative-medicine/herbs](http://www.mskcc.org/cancer-care/diagnosis-treatment/symptom-management/integrative-medicine/herbs)
5. [www.mskcc.org/cancer-care/diagnosis-treatment/symptom-management/integrative-medicine/herbs](http://www.mskcc.org/cancer-care/diagnosis-treatment/symptom-management/integrative-medicine/herbs)
6. [www.fda.gov/food/dietary-supplements](http://www.fda.gov/food/dietary-supplements)

## Additional resources

### Supplement Your Knowledge: Dietary Supplement Education Initiative

Website: [www.fda.gov/food/information-consumers](http://www.fda.gov/food/information-consumers)

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Our team is made up of doctors and oncology certified nurses with deep knowledge of cancer care as well as editors and translators with extensive experience in medical writing.

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