

Dietary Supplements

The Smart and Safe Use of Vitamins and Supplements

Information about dietary supplements is often confusing. It's hard to know which offer genuine health benefits and which are merely giving false promises. By learning all you can about vitamins and supplements, you can make better choices about those that are right for you.

What are dietary supplements?

The Dietary Supplement Health and Education Act (DSHEA) defines a dietary supplement as a product that:

- supplements the food you eat;
- contains one or more dietary ingredient (including vitamins; minerals; herbs or other botanicals; amino acids, and other substances);
- comes in pill, capsule, tablet, or liquid form; and
- is labeled as a dietary supplement.

There are different types of dietary, or nutritional, supplements. Vitamin and mineral supplements are types of dietary supplements containing micronutrients meant to help a healthy body function smoothly. Herbal (or botanical) supplements are dietary supplements that have a medicinal purpose. Herbal supplements generally support a specific area of the body's health, such as the liver, bones or skin.

Health benefits of vitamin and mineral supplements

Vitamins and minerals are micronutrients that serve a specific purpose and benefit the body in a unique way. For example, vitamin A supports vision and bone growth, whereas vitamin E strengthens the immune system and helps repair DNA. Vitamin and mineral deficiency can impair the body's ability to heal and protect itself. Taking vitamins does not make up for an unhealthy diet, and vitamins are an insufficient substitute for nutrients from fresh fruits, vegetables, and whole grains. However, a general multivitamin and mineral supplement can be a good safeguard against periodic vitamin shortfalls in your diet.

Herbal Supplements

Herbal supplements are different from vitamin and mineral supplements in that they are considered to have medicinal value. Herbs, also known as botanicals, are one of humanity's oldest health care tools, and the basis of many modern medicines. Primitive and ancient civilizations relied on herbs for healing, as do many contemporary cultures throughout the world. In fact, the World Health Organization has estimated that 80% of the world's population continues to use traditional therapies, a major part of which are derived from plants.

If you are taking other medications, refrain from taking herbal supplements without first checking with your doctor. Herbal supplements and over-the-counter medications or prescription drugs can combine to cause adverse side effects. Just because an herbal supplement is extracted from a "natural" source does not render it any less potent than any other chemicals you may ingest.

Who can benefit from vitamin and mineral supplements?

In general, children and adults might benefit from taking one multivitamin per day. A multivitamin helps provide a consistent source of the necessary vitamins and micronutrients. According to the Harvard School of Public Health, "a daily multivitamin, and maybe an extra vitamin D supplement, is a great way to make sure you're getting all the nutrients you need to be healthy." However, the very first consideration is to eat a healthy diet. Even the best supplement is no substitute for good nutrition.

In many Western countries, people tend to consume foods that are high in calories, but lack nutrients that are vital for good health. Some groups of people, because of distinct nutritional needs, benefit most from taking a vitamin and mineral supplement:

- Women of childbearing age (need extra calcium and iron)
- Pregnant or lactating women
- Children and teenagers with irregular eating habits

- Seniors
- Vegetarians or vegans (may be deficient in key nutrients)
- Dieters or people avoiding certain food groups (may be deficient in key nutrients)
- People with eating disorders or medical conditions (deficiency diseases, absorption problems, lactose intolerance, etc.)
- People who often eat processed and fast food

Ensuring smart supplementation

The word “supplement” means *something added*. In this case, you’re “adding” to a basic healthy diet and lifestyle, or to a prescription medication or therapy to treat a medical condition. An herbal supplement or vitamin regimen on its own will not necessarily cure or treat your condition or health problem. It’s also important to remember that not all supplements are beneficial, especially when taken in toxic doses or combined with other medications.

The media loves exciting headlines, so the moment an herb or vitamin is tentatively shown to be beneficial in some way, it is touted as the next miracle cure. Advertising can be misleading as well, promising us “totally safe”, “natural”, and “quick and effective” solutions to many health problems. You can keep yourself from falling prey to false promises by researching any product you are considering taking. Make sure there is good scientific research that supports the claims of the supplement’s marketers.

Before you decide to take a dietary supplement, ask yourself:

1. Do I need this supplement?
2. Do I know that this supplement is safe?
3. Does this supplement interact with any drug or food I am consuming?
4. Do I know that this supplement works?
5. Can I afford this supplement?
6. Do I know enough about this supplement?

Dietary supplement safety

Homeopathic vs. Herbal Supplements: What’s in a name?

Homeopathy uses natural substances derived from botanical, animal, or mineral sources in micro doses to assist the body's natural mechanisms for protecting and healing itself. In the U.S., **homeopathic medicines** are regulated by the Food and Drug Administration (FDA), but in different ways than other drugs. Manufacturers of homeopathic drugs are deferred from submitting new drug applications to FDA and their products are exempt from good manufacturing practice requirements. However, homeopathic drugs in solid oral dosage form must have an imprint that identifies the manufacturer, the active ingredient, and dosage strength, and indicates that the drug is homeopathic. **Herbal remedies** are made from parts of whole plants. **Herbal supplements** are not regulated as medicines by the FDA and thus can make unsubstantiated health claims.

Dietary supplements may not be risk-free under certain circumstances. Be sure to consult your health practitioner before purchasing or taking any supplement if you are pregnant, nursing a baby, or have a chronic medical condition such as diabetes, hypertension, or heart disease. Also, while vitamin and mineral supplements are generally considered safe for children, you may wish to check with your doctor before giving these or any other dietary supplements to your child. In many cases dietary supplements and homeopathic remedies can be marketed without providing evidence of safety or efficacy. In order for a product to get removed from the shelves in the United States, for example, the FDA must prove that it is dangerous – and that is often to the detriment of the consumer.

Supplement manufacturers are allowed to make claims regarding health, nutritional content, and structure/function, subject only to limited restrictions. **Health claims** describe a relationship between a dietary supplement ingredient and reducing the risk of a disease or health-related condition. For example, the label on a bottle of Evening Primrose Oil capsules might claim that the product, *“Provides relief from symptoms associated with PMS and menopause such as cramps, hot flashes, breast tenderness, and moodiness.”* **Nutrient content claims** refer to the percentage of DV (daily value) of the nutrient the supplement provides. A **structure/function claim** is a statement describing how a product may affect the organs or systems of the body. It can't mention a specific disease. For

example: "COQ10 supports heart function as a component of the electron transport system, and as an antioxidant protects mitochondrial membranes and cholesterol from oxidation."

When selecting a nutritional, dietary, or herbal supplement, keep in mind the following:

- Nutritional, dietary, and herbal supplement manufacturers are not required to run studies to determine product safety or efficacy.
- In the U.S., the FDA does not analyze the contents of dietary supplements.
- Dietary supplement manufacturers in the U.S. must meet the FDA's Good Manufacturing Practices (GMP) for food, but some companies also follow the GMP for drugs on a voluntary basis.
- Specific health claims on dietary supplement labels in the U.S. are not approved by the FDA and must also include a disclaimer that states the nutritional supplement is not intended to "diagnose, treat, cure, or prevent any disease."
- Daily Value (DV) describes the recommended daily intake of a particular nutritional supplement, if one is established.

In addition, keep in mind the following safety concerns when taking vitamin or mineral supplements:

Don't substitute dietary supplements for medication

If you're considering using a dietary supplement in place of drugs, consult your health care provider first. And remember, just because it is "natural" doesn't mean it's gentler or more beneficial to your body. Many supplements contain active ingredients that have strong biological effects and their safety is not assured.

Caution: Interactions with other medications

Some dietary supplements may interact with other supplements or prescription and over-the-counter medicines. Taking a combination of supplements or using the products with medications (whether prescription or OTC drugs) can cause dangerous interactions which could be life-threatening.

Some common negative interactions:

- **Calcium** can interact with heart medicine, certain diuretics, and aluminum and magnesium-containing antacids.
- **Magnesium** can interact with certain diuretics, some cancer drugs, and magnesium-containing antacids.
- **Vitamin K** can interact with blood thinners like Coumadin.
- **St. John's Wort** is known to adversely affect selective serotonin reuptake inhibitor (SSRI) drugs (i.e., anti-depressant drugs), and birth control pills.

Some dietary supplements can have unwanted effects during surgery

You may be asked to stop taking certain products 2 to 4 weeks ahead of time to avoid potentially dangerous supplement/drug interactions, such as changes in heart rate, blood pressure, and increased bleeding. Talk with your doctor about *everything* you are taking before the surgery – vitamins, minerals, and herbal supplements, as well as medications.

Some dietary supplements are known to be dangerous

Just because a product is on the market does not mean it is definitely safe. There are some known toxic herbs that are still available to the consumer, such as: aristolochia (linked to kidney failure and cancer in the U.S., China, Europe, and Japan); yohimbe (a sexual stimulant linked to heart and respiratory problems); bitter orange (has effects similar to those of the banned stimulant ephedra); and chaparral (linked to liver damage).

Researching and buying vitamin, mineral and herbal supplements

The safest way to purchase supplements is from a reputable vitamin or health food store, or from a health practitioner. However, not all of us have access to these types of resources. As an Internet-savvy consumer, your computer can be your best friend when it comes to choosing the right supplement for you.

The amount of information available on the Web can be overwhelming, but by using the following simple steps, you can be sure you're getting reliable information about herbal or vitamin supplements.

How to research dietary supplements

1. **Safety and Efficacy:** Before you embark on a supplement regimen, be sure that what you're going to take is safe and effective. The National Institute of Health Office of Dietary Supplements offers fact sheets on most herbal dietary supplements, including safety aspects. See Resources and References section below for the link.
2. **Dosage:** The Mayo Clinic offers a searchable database of supplements, also in the Resources and References section below. It rates the efficacy of a supplement for various health conditions, explains safety concerns, and details recommended dosage information for adults and children.
3. **Quality:** Look for "standardized" products from manufacturers participating in the US Pharmacopeia's Dietary Supplement Verified Program or those carrying the NSF International mark of safety.

A seal from one of these organizations indicates a dietary supplement has met certain manufacturing standards, such as uniformity, cleanliness, and freedom from environmental contaminants, including lead, mercury, and drugs. Each group has different standards and processes, but the goal of each is to certify that herbal supplements meet certain safety and purity criteria.

There are a lot of different companies marketing supplemental products. Quality does matter, so it's good to read the ingredients and warnings on the bottle, and learn about the manufacturers. It's up to you as the consumer to protect your own health – so practice caveat emptor ("let the buyer beware"), and consult your health care professional before taking any type of dietary supplements.