HEALTH BASICS

Dietary supplements

Dietary supplements are products taken to add vitamins, minerals, herbs, or other ingredients to your diet.

WHAT IT IS
Products containing vitamins, minerals, herbs, or other dietary ingredients

WHERE IT COMES UP
Pharmacies, shops, online stores, and healthcare visits

WHY IT MATTERS
Benefits, side effects, and interactions can affect health

WHAT IT IS NOT
Not a disease or a diagnosis

WHO TO ASK
A pharmacist, dietitian, or relevant clinician

HOW IT IS CHECKED
Labels, medication review, and targeted tests when appropriate

Overview

Dietary supplements are products intended to add ingredients to your diet. They include vitamins, minerals, amino acids, herbs, probiotics, enzymes, fish oils, and other substances. They may be sold as tablets, capsules, powders, gummies, liquids, or drops.

A dietary supplement is not a disease or a diagnosis. It is also not the same as a prescription or over-the-counter medicine, even when it comes in a similar package.

People use supplements for many reasons. A clinician may recommend one for a confirmed nutrient deficiency, a restricted diet, poor nutrient absorption, pregnancy, or another specific need. Other products are marketed for general wellness, energy, sleep, weight, immunity, or athletic performance. The evidence for these claims differs greatly between products.

Rules vary by country. In the United States, supplements are regulated as a category of food rather than as medicines. Manufacturers generally do not have to prove that a supplement is effective before selling it. They are responsible for product safety and accurate labeling, while the US Food and Drug Administration can act against unsafe or unlawfully marketed products.[1,2]

The words "natural" and "herbal" do not guarantee that something is safe. A plant extract can

have strong effects on the body, interact with medicines, or be harmful in certain amounts.

How it works

A supplement may provide a nutrient that your body needs. For example, replacing a nutrient can help when testing and medical assessment show that you do not have enough of it.

Other supplements contain ingredients that act more like drugs. They may affect brain signals, blood clotting, blood pressure, digestion, liver enzymes, or how medicines are absorbed and removed from the body. These effects may be intended, unintended, or both.

What reaches your body can be affected by:

Some vitamins, including vitamins A, D, E, and K, are stored in body fat. Large or repeated amounts can build up. Water-soluble vitamins are less likely to accumulate in this way, but high amounts can still cause harm.

Products with the same ingredient name are not always equivalent. Different extracts, strains, mixtures, or manufacturing methods may produce different effects. A label such as "proprietary blend" may list the ingredients without stating the amount of each one.

- The ingredient and chemical form
- The amount in each serving
- Whether you take it with food
- Other medicines or supplements
- Your age, pregnancy status, and health conditions
- How well your digestive system absorbs nutrients

Why it matters for your health

Supplements can be useful when they meet a clear nutritional or medical need. Examples include replacing a diagnosed deficiency or supplying a nutrient that is difficult to obtain because of diet, poor absorption, or a particular life stage. The right product depends on the reason for taking it.

A supplement should not be assumed to replace a balanced diet. Foods provide protein, fibre, energy, and combinations of nutrients that a pill may not provide. Supplements also do not replace proven medical treatment.

Evidence for one purpose does not prove benefit for another. For example, correcting a

deficiency is different from taking the same nutrient to prevent heart disease or cancer. For community-dwelling adults who are not pregnant, the US Preventive Services Task Force found insufficient evidence that multivitamins or most single or paired nutrients prevent cardiovascular disease or cancer. It recommended against beta-carotene and vitamin E supplements for that specific purpose.[5]

Your medicines and health conditions matter. A product that is reasonable for one person may be unsuitable for another. Pregnancy, kidney or liver disease, upcoming surgery, and treatment for cancer or blood-clotting conditions can make a supplement review especially important.

What can go wrong

Dietary supplements can cause side effects. These may include nausea, diarrhoea, constipation, headache, sleep problems, or allergic reactions. The effects relate to the ingredients and amounts, not to the category "supplement" itself.

Several more serious situations can occur:

Examples of known interactions include vitamin K reducing the effect of warfarin, an anticoagulant that prevents blood clots, and St John's wort changing the levels of many medicines. Iron and calcium can also reduce the absorption of certain medicines when taken close together. A pharmacist can check the exact products and timing.

Seek emergency help for trouble breathing, swelling of the face or throat, fainting, a seizure, severe confusion, or a suspected large ingestion. If a child may have swallowed iron or another supplement, contact emergency services or a poison information service promptly.

Seek urgent medical advice for yellow skin or eyes, dark urine, severe abdominal pain, persistent vomiting, or unusual bleeding. Mild or ongoing side effects can usually be discussed through routine care, but stop using a suspected non-essential product until you receive advice.

- Excess intake: Taking several products with overlapping ingredients can lead to harmful amounts
- Medicine interactions: Some supplements change how prescription or over-the-counter medicines work
- Laboratory interference: Biotin can distort certain blood test results, including some thyroid and heart-related tests[4]
- Liver injury: Some herbal, bodybuilding, and weight-loss products have been linked to liver damage[6]

- Contamination or adulteration: A product may contain an undeclared drug, stimulant like methylphenidate or lisdexamfetamine , allergen, or different amount than its label states
- Delayed care: Relying on a supplement may postpone testing or treatment for an underlying condition

What you can do

There is no single test that shows whether every supplement is needed, safe, or effective. Blood tests exist for some nutrients, but they should be chosen for a specific reason. Results may also need to be interpreted alongside your diet, symptoms, health history, and medicines.

Practical steps include:

Independent quality seals may show that a product was tested for identity, strength, or contamination. They do not prove that it works or that it is safe for you.

Do not stop a prescribed medicine in order to take a supplement without discussing the change with the clinician who manages that treatment.

- Keep a list of every supplement, medicine, powder, tea, and energy product you use
- Record the brand, ingredients, serving amount, and how often you take it
- Bring the list or product photos to healthcare appointments
- Ask what benefit is expected, how it will be checked, and when to stop
- Ask a pharmacist to check for interactions and duplicate ingredients
- Tell the testing service about biotin and other supplements before blood tests
- Keep products in their original containers and away from children
- Report a suspected serious reaction to the appropriate medicines or food-safety regulator

Common questions

Do I need a multivitamin?

There is no single answer for everyone. Your diet, age, pregnancy status, medical conditions, medicines, and test results may affect the answer. Ask what specific gap the product is intended to fill.

Is a higher amount better?

No. Nutrients can have a useful range, and more is not automatically better. High amounts may cause toxicity, interact with medicines, or hide another deficiency.

Are herbal products safer than medicines?

Not necessarily. Herbal ingredients can have strong biological effects. Their strength may differ between products, and some interact with medicines or affect the liver.

Should I have blood tests before taking a supplement?

Testing may be useful when a deficiency is suspected or when treatment needs monitoring. There is no routine blood panel that can determine whether all supplements are appropriate. Ask which nutrient is being checked and how the result would change your plan.

Can I take supplements before surgery?

Tell the surgical team about everything you take well before the procedure. Some products can affect bleeding, sedation, blood pressure, or other medicines. The team can give product-specific instructions.

How can I tell whether a claim is reliable?

Be cautious with claims that a product cures many unrelated conditions, works immediately, replaces prescribed care, or is safe because it is natural. Look for evidence about the exact ingredient, amount, product, and intended use-not only testimonials.

Sources

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