Vitamin and mineral supplements

Summary

- Vitamins are organic compounds used by the body in small amounts for various metabolic processes.
- Vitamin supplements cannot replace a healthy diet.
- Those who may need vitamin supplements include women who are pregnant or breastfeeding, people who consume alcohol in amounts over those recommended as safe, drug users, and the elderly.
- Taking vitamins and mineral supplements in large doses can be harmful to your health and cause toxicity.

Vitamins are organic compounds that our bodies use, in very small amounts, for a variety of metabolic processes. It is best to get vitamins and minerals from eating a variety of healthy unprocessed foods.

While taking a general ‘broad-spectrum’ vitamin and mineral supplement ‘just in case’ poses little health risk, and may benefit a person whose diet is restricted and lacks variety, taking vitamin and mineral supplements instead of eating a nutritious diet is not recommended.

Vitamin and mineral supplements are frequently misused and taken without professional advice. They are often used as a form of medicine to treat ailments such as colds, or to counteract lifestyle issues such as stress. Contrary to popular belief, vitamins aren’t drugs or miracle cures. They are organic compounds that participate in various metabolic functions. High-dose supplements should not be taken unless recommended under medical advice.

Vitamins and minerals are obtained from food

Research indicates that most of the vitamins you get from the food you eat are better than those contained in pills. Even though vitamins in supplements are synthesised to the exact chemical composition of naturally-occurring vitamins, they still don’t seem to work as well.

The main exception to this is folate. The synthetic form (in a supplement or fortified food) is better absorbed by the body than folate from food sources.

Food is a complex source of vitamins, minerals and phytochemicals (plant chemicals), which all work together. Supplements tend to work in isolation. Research shows a food component that has an effect on the body may not have the same effect when it is isolated and taken as a supplement. This could be because the vitamins and minerals in foods are also influenced by other components of the food, not just the ‘active ingredient’.

Phytochemicals are an important component of food and are thought to reduce the incidence of heart disease and some cancers. Supplements do not provide the benefits of phytochemicals and other components found in food. Taking vitamin and mineral supplements is no substitute for a healthy diet.

Vitamin and mineral deficiencies

Our body only needs a small amount of vitamins and minerals every day. A varied diet generally provides enough of each vitamin and mineral. However, some people may need supplements to correct vitamin or mineral deficiencies and this includes:

- pregnant women and women who are breastfeeding
- people who smoke, drink alcohol in excess or use illegal drugs
- crash dieters or those on very strict diets
- the elderly (especially those who are disabled or chronically ill)
- some vegetarians or vegans
- women with heavy periods

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- people with **food allergies**
- those with malabsorption problems (such as diarrhoea, coeliac disease, cystic fibrosis or pancreatitis).

**Folate and pregnancy**

Women who are pregnant or planning a pregnancy are recommended folic acid (also known as folate) supplements to reduce their risk of having a child with a neural tube defect, such as spina bifida.

Folic acid is a **B-group vitamin** which can also be found in some fortified foods such as breads and breakfast cereals. Foods fortified with folic acid have the nutrient added to them during production to boost their nutritional value.

**Vegan diets and vitamin supplements**

Also, people who follow vegan diets, especially if pregnant, may benefit from vitamin B12 supplements.

**Vitamin pills are not miracle cures**

It is commonly believed that taking mega-doses of certain vitamins will act like medicine to cure or prevent certain ailments. For instance, vitamin C is suggested as a cure for the common cold, and vitamin E is widely promoted as a beneficial antioxidant to help prevent heart disease.

After extensive research, however, neither of these claims has been shown to be true. Large-scale studies have consistently shown little benefit in taking mega-doses of supplements. In fact, there is some evidence that taking high-dose supplements to prevent or cure major chronic diseases (such as heart disease and cancer), may be harmful to your health.

**Stress, tiredness and vitamin pills**

Vitamin supplements are commonly considered to be an antidote to stress. Feeling under pressure doesn’t automatically lead to a vitamin deficiency, so taking a vitamin supplement won’t necessarily make stressful feelings go away.

Popping a pill will not likely cure persistent tiredness either. If you are feeling run down, it is more likely to be due to stress, depression, insufficient sleep or other factors, rather than a vitamin deficiency. If you feel like this regularly, seek medical advice.

**Anti-ageing vitamins**

Vitamin E is often singled out as the potential fountain of youth. However, there is no evidence that taking large doses of any vitamin can stall or reverse the effects of ageing. Neither can one vitamin restore a flagging sex drive or cure infertility.

**Vitamin use and cancer claims**

Some claims have been made that certain vitamins can treat different cancers. However, research shows this is not the case. For example:

- Vitamin A (beta-carotene) in large doses does not cure cancer and can be toxic, particularly if taken as pills rather than food. Studies have linked vitamin A to an increase in other cancers – such as lung cancer in smokers, if taken in supplement form.
- Although there is some evidence vitamin E could play a small role in preventing some cancers equally, there is evidence that it could speed up the onset of other types of cancer. However, this has not been proved or disproved.
- High doses of antioxidants are unlikely to help with the effectiveness of conventional cancer treatments (such as chemotherapy and radiotherapy). In fact, megadoses of antioxidants can interfere with some medical treatments for cancer by helping to protect the cancer cells that the therapies aim to destroy.
- Some studies have shown prostate, breast and lung cancer risk are not decreased by taking high-dose supplements containing vitamins E or C or selenium.

**Vitamin and mineral supplements can be dangerous**

Proper balance and adequate levels of essential nutrients is important for a range of complex processes in our

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body. When vitamins are taken as supplements, they are introduced into the body at levels that could never be achieved by eating even the healthiest of diets.

Supplementation can also result in large doses of a single vitamin being eaten ‘alone.’ When vitamins are consumed from foods, they have many companions to help them along the way. For instance, provitamin A (beta-carotene) in food is accompanied by hundreds of its carotenoid relatives.

Simply taking a vitamin pill is not an instant fix for feeling run down or lacking in energy. It is the combination of a whole range of compounds in foods that gives us the protection (most of which we probably don’t even know about). When you artificially remove one of them and provide it completely out of context, it may not be as effective and, in the case of some vitamins, can have negative effects.

Vitamins and mineral supplements can also interfere with prescription medicines and medical treatments. In extreme cases, for example, where people take 100 times the recommended dietary intake (RDI), this can stop the work of anticonvulsant drugs, such as those used in epilepsy.

**High doses of vitamin supplements are unsafe**

Many people mistakenly believe that since small amounts of vitamins are good for you, then large amounts must be better. However, it is better to follow the rule of ‘less is more’.

Taking higher than recommended doses of some vitamins may cause health problems. Such as:

- Vitamins A, D, E and K are fat soluble, which means they are stored in the body and if taken in high doses can be toxic.
- High doses of some water-soluble vitamins, such as vitamin B6, can also become toxic.
- Large folate intakes can hide vitamin B12 deficiencies.
- High levels of vitamin B6 have also been linked to some types of nerve damage.
- Doses of vitamin C above one gram can cause diarrhoea.
- Large doses of vitamin C may also cause nausea, abdominal cramps, headaches, fatigue, kidney stones interfere with your body’s ability to process (metabolise) other nutrients – such as dangerously raising your iron levels.
- Excessive amounts of vitamin C in the body can also interfere with medical tests – such as diabetes tests, by giving a false result.
- High doses of vitamin A may cause birth defects, as well as central nervous system, liver, bone and skin disorders.
- High-dose vitamin E supplements have been linked to higher rates of early death (mortality).

**Large doses of minerals can also lead to health problems**

Excessive doses of some minerals may also cause problems for example:

- At just five times the RDI, zinc, iron, chromium and selenium can be raised to toxic levels in the body.
- Large intakes of fluoride (especially in childhood) may stain, and even weaken, the teeth.
- Very large doses of fish oil can lead to decreased blood clotting.
- Iron toxicity is also common. Even a small amount over the RDI can cause gastrointestinal upset, nausea and black bowel actions (poo). Severe toxicity can lead to coma and even death.

**Stay safe and keep to the recommended dose**

For a healthy adult, if supplements are used, they should generally be taken at levels close to the RDI. High-dose supplements should not be taken unless recommended under medical advice.

**Vitamin and mineral supplements are a short-term measure**

Taking vitamin and mineral supplements is a short-term measure. The long-term use of some high-dose supplements can lead to symptoms of toxicity. If you feel that you could be lacking in certain vitamins and minerals, it may be better to look at changing your diet and lifestyle rather than reaching for supplements. If you need help, see your doctor or a dietitian.
Seek professional advice when taking vitamin and mineral supplements

Some complementary medicines, such as vitamin and mineral supplements can interact with prescription medicines and medical treatments. That’s why it’s important to seek advice from your doctor.

If you are advised to take vitamin supplements, it is a good idea to see a dietitian, who can work with your doctor or other health professionals to provide dietary advice related to your situation.

And if you do need to take a supplement, it is best to take multivitamins at the recommended dietary level, rather than single nutrient supplements or high-dose multivitamins.

Remember, to report any complementary medicines (including vitamin and mineral supplements) you are taking when you visit any healthcare professional.

Where to get help

- **Your GP (doctor)**
- Dietitians Association of Australia Tel. 1800 812 942 or find a dietitian near you
- Nutrition Australia.

This page has been produced in consultation with and approved by:

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