

Vitamins - common misconceptions

There are many misconceptions about vitamins and the health benefits they offer. Vitamins play an important role in keeping the body healthy. However, taking large doses of certain vitamins can actually be harmful. For most people, it is best to get the vitamins our bodies need from eating a variety of healthy, unprocessed foods rather than by taking supplements.

Vitamin supplements are frequently misused and taken 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.

Isolating the 'active ingredient' is not the answer

Proper balance and adequate levels of essential nutrients is important for a range of complex processes in our 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. They are also sent in 'alone'. When they occur in food, vitamins have many other 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 (most of which we probably don't even know about) in plant foods that gives us the protection. 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]

Recommended dietary intakes

Many people mistakenly believe that since small amounts of vitamins are good for you, then large amounts must be better. In the case of vitamins, it is better to follow the rule of 'less is more'. The vitamins A, D, E and K are fat soluble, which means they can be stored in the body. Taking high doses of these vitamins, especially vitamin A, over a long period of time can result in harmful levels in the body unless you have a medically diagnosed deficiency.

Some of the water soluble vitamins can also cause side effects in high doses. For instance, vitamin B6 has been linked with nerve damage when taken in large doses.

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

Deficiencies and illness

The human body is able to store vitamins. The fat soluble vitamins A, D, E and K can be locked away in the liver and body fat and stored for a long time. The water soluble vitamins, including B-complex and vitamin C, are mostly only stored for a shorter period of time.

A vitamin deficiency takes weeks or months before it will affect your health. For instance, it would take months of no vitamin C before you developed scurvy. An occasional lapse in good eating will not harm you if your usual diet consists of a wide variety of fresh foods.

Sometimes supplements are needed

Supplements do have a role to play for some groups of people. For instance, people on long-term restrictive weight loss diets or people with malabsorption problems such as diarrhoea, coeliac disease, cystic fibrosis or pancreatitis can benefit from supplements. Folic acid supplements are strongly recommended for women planning a pregnancy to reduce the risk of having a baby with neural tube defects, like spina bifida.

People who are advised by their doctor that they need to take vitamin supplements are encouraged to consult an accredited dietitian, who can work with their doctor to provide dietary advice related to the person's situation. If you 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.

The common cold and vitamin C

Many people think that vitamin C helps prevent the common cold. Despite exhaustive research across the world, there is still no strong evidence to prove this. Some studies have shown that taking large doses of vitamin C (more than 1,000mg per day) continuously or at the start of a cold may ease some of the symptoms and the duration – on average, making it about half a day shorter. It does not prevent you catching a cold.

You also need to consider the health risks associated with taking large doses of vitamin C. Large doses may cause nausea, abdominal cramps, headaches, fatigue, kidney stones and diarrhoea. It may also interfere with your body's ability to process (metabolise) other nutrients – for example, it could lead to dangerously raised levels of iron. Excessive amounts of vitamin C in the body can also interfere with medical tests, such as diabetes tests, giving a false result.

Adults need about 45mg of vitamin C per day and any excess amount is excreted.

Stress, depression and anxiety

Some vitamin and omega-3 fatty acid deficiencies can lead to emotional disturbances. However, if you are feeling run down, it is more likely to be due to stress, depression or unhealthy lifestyle habits (such as insufficient sleep or smoking) rather than a vitamin deficiency.

Feeling under pressure doesn't automatically lead to a vitamin deficiency, so taking a vitamin supplement won't necessarily make the stressful feelings go away. More serious mental illnesses, such as schizophrenia and bipolar disorder, aren't caused or prevented by vitamins, although a healthy diet and good nutrient intake can help support a person to better cope with their condition.

Vitamin E and heart disease

Vitamin E is widely promoted as a beneficial antioxidant that can help prevent heart disease. Unfortunately, several large-scale reviews have conclusively found no evidence that vitamin E supplements prevent death from heart disease. In fact, there may be greater risk of all-cause death from taking such supplements.

Cancer cures

Vitamin A in large doses does not cure cancer and can be toxic, particularly if taken as pills rather than food. There is some evidence that vitamin E could play a small role in preventing some cancers although, equally, there is evidence that it could hasten the onset of other types of cancer; however, this has not been conclusively proved or disproved.

While it is argued by some that megadoses of antioxidants can help with the effectiveness of conventional cancer treatments, such as chemotherapy and radiotherapy, the evidence is far from supporting this. In fact, it has been shown that megadoses of antioxidants can actually interfere with some medical treatments of cancer by helping to protect the cancer cells that the therapies aim to eradicate.

Some research findings

A number of studies into supplement use have shown negative findings. For instance:

- Vitamin A (beta-carotene) was thought to reduce the risk of some cancers but has been linked to an increase in others, such as lung cancer in smokers, if taken in supplement form.

- Several long-term studies have shown that prostate, breast and lung cancer risk are not decreased by taking high-dose supplements containing vitamins E or C or selenium.
- People taking high-dose vitamin E supplements have been found to have higher rates of early death (mortality).

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 either stall or reverse the effects of ageing. Neither can any one vitamin restore a flagging sex drive or cure infertility.

Vitamins and chronic disease

In developed countries like Australia, vitamin deficiency is rare but the inadequate intake of some vitamins is not so rare and has been linked to a number of chronic diseases. These include cardiovascular disease, cancer and osteoporosis.

There is ongoing research to study the effects of taking vitamin supplements to prevent chronic disease, and evidence around nutrition and diet is constantly changing. It is important you consult with your doctor before taking vitamin supplements in high doses.

Where to get help

- Your doctor
- An Accredited Practising Dietitian, contact the Dietitians Association of Australia Tel. 1800 812 942

Things to remember

- Vitamins are not drugs or miracle cures.
- Taking large doses of vitamins can be harmful because your body only needs vitamins in very tiny amounts.
- Eating plenty of fruits, vegetables, whole grains and cereals will give your body most of the vitamins your body needs at the right level and in the right balance.
- Vitamin supplements can't replace a healthy diet, but a general multivitamin may help if your diet is inadequate.
- People who may need vitamin supplements include pregnant and breastfeeding women, people who consume alcohol in amounts over the recommended level, drug users and the elderly.

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

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