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Are you overdosing on vitamins?

This could occur if one takes many different supplements that contain similar ingredients



Amrita Kaur

People take vitamin supplements to fill nutritional gaps and reap the benefits that the particular vitamin provides. For example, vitamin D promotes bone health, while B vitamins help in energy production. Vitamin supplements may also offer those with dietary restrictions or a hectic lifestyle a convenient way to get essential nutrients.

But popping a pill for health could potentially backfire if one is not aware that he or she could be consuming too much of a vitamin.

The demand for vitamin supplements in Singapore is projected to increase, with market research firm Euromonitor predicting that the vitamin and dietary supplements industry here will grow from \$581.3 million in 2019 to

\$737.3 million in 2024.

Commenting on the trend, Associate Professor Claire Louise Pettitt, from the Health and Social Sciences cluster at Singapore Institute of Technology, says: "With lives being generally busier and more stressful, people may have less time to prepare meals and cook. They may assume that taking a supplement will give them a safety net in case their diet isn't quite meeting their needs."

People may also be misguided in thinking that they need to take vitamin supplements as manufacturers promote them as necessary – rather than supplementary – to a good diet, adds Prof Pettitt.

The spike in demand has profited pharmacy chains across Singapore.

At Watsons, there has been an uptick of 10 to 15 per cent in the sales of vitamin supplements in the past two years, says its managing director Irene Lau.

A Guardian spokesperson told The Straits Times there has been an increase in demand for vitamin supplements over the past two years, without specifying how

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ASSOCIATE PROFESSOR CLAIRE LOUISE PETTITT from the Health and Social Sciences cluster at Singapore Institute of Technology on the trend of consuming multivitamin supplements

much. During the Covid-19 period, there was a heightened demand for immunity supplements, such as vitamins C and D3, and natural supplements like elderberry.

"Currently, customers are buying more functional supplements, such as those for the heart, bone and joint health, digestive supplements, and those that support relaxation and sleep," adds the spokesperson.

But how do you know if you are taking too much of a vitamin?

Vitamin overdose, also known as vitamin toxicity, happens when you consume excessive amounts – more than the daily recommended amount – of a particular vitamin over an extended period of time, say experts.

Prof Pettitt says this can occur if you are taking many different supplements that contain similar ingredients.

For instance, she says if a woman is trying to conceive and taking a prenatal multivitamin, as well as an individual nutrient supplement or supplements prescribed by her specialist, she might be overdosing on certain vitamins.

Ms Shirlene Moh, senior dietitian at Changi General Hospital's Department of Dietetics, says taking more than one type of multivitamin daily or taking multivitamins that contain large doses of certain vitamins can lead to an overdose.

Some medications contain vitamins, hence taking them in addition to dietary supplements can lead to an unintentional overdose, she highlights.

An example is taking a vitamin B12 tablet in addition to the multivitamin that contains all the 13 essential vitamins, says Ms Moh.

Singapore accredited nutritionist Adlyn Farizah says most vitamin supplements contain vitamin amounts that are close to the recommended dietary allowance (RDA), so being unaware of the dosage instructions can lead to an overdose.

The RDA refers to the recommended daily levels of nutrients to meet the needs of nearly all healthy individuals in a particular age and gender group.

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Ms Shirlene Moh, senior dietitian at Changi General Hospital's Department of Dietetics, says if one consumes sufficient vitamins and minerals from natural food sources, there is no need to take multivitamins. PHOTO: ISTOCKPHOTO

Vitamin toxicity rare, but not unheard of

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Consuming a diet rich in fortified foods – such as cereals, energy bars and beverages – containing vitamins can also result in excessive vitamin intake, especially if people are not aware of the fortification levels, notes Ms Moh.

Fortified foods contain additional micronutrients, such as vitamins, minerals and essential nutrients.

She illustrates her point with the following scenario: "A 250ml cup of low-fat milk and one multivitamin tablet for breakfast; a scoop of mash potato and salad consisting of lettuce, tomato, cucumber, as well as one palm-sized grilled chicken and vitamin water for lunch; and one bowl of brown rice, one serving of broccoli and stir-fry

beans with tau kwa for dinner." In such a case, Ms Moh says there is no need to take the multivitamin tablet as there are sufficient vitamins and minerals from natural food sources.

Prof Pettitt says vitamin toxicity is generally rare, but not unheard of. Excess water-soluble vitamins are passed out of the body through urine. But fat-soluble ones such as vitamins A, D, E and K build up in fat tissues, hence the effects of an overdose are more likely to be felt with fat-soluble vitamins, she points out.

For instance, says Ms Adlyn, an overdose of vitamin A may cause headaches, vomiting, diarrhoea and loss of appetite.

During pregnancy, an excess of vitamin A can lead to liver damage and birth defects in the unborn

child, notes Prof Pettitt.

It is rare to over-consume vitamin D from one's diet, however, an excess of it from supplements can cause issues such as irregular heartbeat and organ damage, she says.

Excessive intake of vitamin E over a long period of time may also affect blood clotting, leading to haemorrhage or a stroke, she adds.

Although the risk of an overdose of water-soluble vitamins is unlikely, regular excess consumption of some vitamins, such as vitamin C, can lead to side effects such as nausea, diarrhoea and stomach cramps, says Prof Pettitt.

Ms Chrystal Lee, a 29-year-old sales executive, stocked up on vitamin C to build stronger immunity during the Covid-19 pandemic in 2021.

"When I started feeling nauseous and had stomach cramps, my friend, a healthcare professional, advised me to cut back on vitamin C supplements since I was maintaining a healthy diet," she says. While she does not remember the dosage she was taking, she says her symptoms went away after she reduced her intake.

According to Singapore's health portal HealthHub, the recommended dietary allowance for vitamin C for adults aged 19 and above is 105mg for men and 85mg for women.

Taking more than 500mg of vitamin B6 a day can lead to potentially irreversible nerve damage over time, while taking large amounts of vitamin B3, also known as niacin, in excess of 2g a day can cause liver damage, highlights Ms Moh.

People who take functional supplements – such as those for the heart and bones and ones that support immunity – are at risk of an overdose if they are taking other vitamin supplements at the same time, cautions Ms Adlyn.

"Functional supplements can contain vitamins, minerals, other nutrients, or a combination of them. For example, bone health supplements usually contain calcium as well as vitamin D to increase the absorption of calcium," she says.

Death from vitamin overdose is an extremely uncommon occurrence, but there have been such reports due to people taking megadoses of certain vitamins, leading to complications such as fatal organ damage and failure, says Ms Adlyn.

Some vitamins also interact with medications, which can lead to adverse effects when taken together.

For instance, vitamin K works against warfarin, a blood-thinning medication for people with an increased risk of blood clots, says Ms Adlyn.

As vitamin K is involved in the chemical process of forming blood clots in the body, taking a vitamin K supplement while on warfarin can reduce the efficacy of the medication, she explains. Despite the risks of overdosing on vitamins, there are certain groups of people who might benefit from taking supplements.

Prof Pettitt says those with coeliac disease often suffer from micronutrient deficiencies due to damage to the small intestine lining, affecting the ability to

absorb nutrients. Coeliac disease is an autoimmune and hereditary condition in which the ingestion of gluten leads to damage in the small intestine.

These deficiencies, Ms Adlyn says, are usually determined through tests by healthcare professionals before specific supplements are prescribed.

Pregnant women and mothers who are breastfeeding also require a higher dose of vitamins and minerals, especially folic acid, known as vitamin B9, to prevent spina bifida (a birth defect of the spine) in a newborn, says Ms Moh.

Some groups of vegetarians, including vegans, especially if they are pregnant, may also benefit from taking additional vitamin B12, which is important for red blood cell production, to maintain healthy nerves and a healthy brain, she adds.

Experts say there is no need for people to take multivitamins if they maintain a healthy and balanced diet.

Ms Moh says: "A healthy diet includes a variety of whole foods, which also enhances the enjoyment of eating. It's also a cheaper option and remains the best way to obtain essential nutrients for most people, unless one belongs to a group which needs to take supplements."

If you feel that you are unable to meet the requirements of certain nutrients through your diet, consult your family doctor before taking a supplement, advises Ms Adlyn.

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