Too much of a good thing?

A deficiency of vitamins or minerals can cause illness. That much is true. However, it is not true that taking high-dose food supplements is always beneficial.

The elderly lady probably had no concerns when she ordered a high-dose vitamin D3 supplement on the internet. For three months, she took approximately 250 micrograms (µg) of the vitamin daily via that food supplement. In comparison: for vitamin D in such products, the BfR recommends a maximum amount of 20 µg per daily dose. One of the consequences of the self-administered supplementation of more than ten times the dosage recommended as maximum amount for food supplements was acute kidney failure. After intensive medical treatment and a two-week stay in the hospital, the patient's condition improved. This meant that she was better off than an adult man who developed irreversible kidney failure and left him dependent on dialysis for the rest of his life as a result of taking high doses of vitamin D, also on his own accord.

The two examples reported by the Drug Commission of the German Medical Association illustrate that food supplements currently available on the market are not always harmless pills and powders that can be taken safely in large amounts. Quite the contrary: excessive doses can sometimes have serious health consequences.

MORE IS NOT ALWAYS BETTER

Overconsumption of vitamins or minerals can occur when high-dosage micronutrient supplements are taken with a "more is better" approach in order to combat a supposed nutrient deficiency. Sometimes it is also application or dosage errors or – more rarely – errors in the manufacturing of products that can

TIPS

CASES IN WHICH FOOD SUPPLEMENTS ARE USEFUL, AFTER MEDICAL CONSULTATION

- **Before and during pregnancy:** 400 µg folic acid per day to reduce the risk for certain birth defects
- **During pregnancy and breastfeeding:** Iodine due to an increased need
- **In certain circumstances:** e.g. vitamin D for people who are ill and residents of care homes who are unable to spend much or any time outdoors
- **In case of certain dietary habits:** e.g. vitamin B12 and, as needed, other vitamins and minerals for vegans
- In the case of a medically diagnosed micronutrient deficiency

lead to an oversupply. For example, in the case of a woman who had experienced hair loss after taking a selenium-containing food supplement for several months, it turned out that the capsules contained about eight times the listed dose of 20 µg of selenium per day.

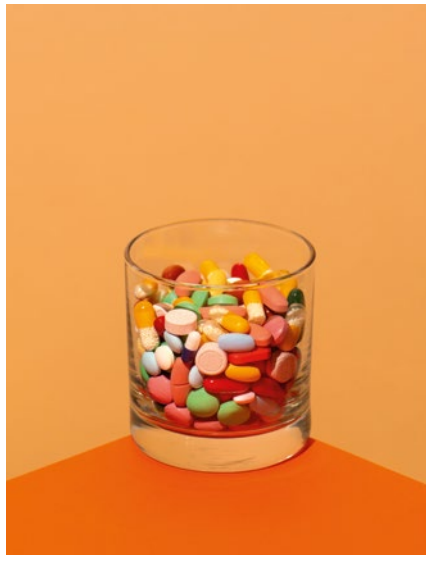
"Food supplements are legally classified as food," says BfR scientist Dr Karen Hirsch-Ernst. "They are subject to less stringent controls than medicinal products and are not subject to official authorisation before being placed on the market. The responsibility for the safety of supplements lies with the manufacturer and retailer." Moreover, there are currently no legally defined maximum amounts for the ingredients of supplements.

It is important to know that acute poisoning from the intake of food supplements containing vitamins or minerals is rare. However, a consistently high intake – far exceeding the body´s requirements – increases the risk of adverse health effects.

A FEW EXAMPLES:

— Vitamin A: A high intake from food supplements or the consumption of animal liver during pregnancy increases the risk for birth defects.

— Beta carotene (provitamin A): A high intake from food supplements can increase the risk for lung cancer in smokers.



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— Vitamin K: The intake via food supplements could counteract the effect of certain anticoagulant medications (anticoagulants of the coumarin type).

"Currently, there is no mandatory reporting requirement for adverse effects involving food supplements," says Dr Nina Glaser from the National Register of Poisonings at the BfR. "However, the BfR does accept voluntary communications from doctors and authorities. Based on the data from the Pilot Study on Poisoning Monitoring (PiMont Study), it can be estimated that the German poison control centres provide advice on approx. 600 enquiries related to food supplements every year."

SOMETIMES USEFUL

Data shows that most people get adequate amounts of micronutrients from their usual diet and, with a few exceptions, do not need food supplements. There are only a few nutrients for which there are indications of an inadequate intake in certain age groups or life situations, which increase the risk of an insufficient supply, or for which there are general recommendations (see box). Only in these cases can food supplements make a meaningful contribution to the improvement of nutrient intake and to the avoidance of deficiencies and health impairments. —

More information

BfR information
"Food supplements"