Nutritional supplements are intended as additions to the diet. The products should contain concentrated sources of vitamins, minerals or other substances with a nutritional or physiological effect. Nutritional supplements are regulated in detail by the applicable regulations (Kosttilskuddsforskriften) (1).

**High dosages must be classified as drugs**

The benefits of nutritional supplements are a source of constant debate (2, 3). Debates have included whether large doses of vitamins and minerals in the form of nutritional supplements may have undesired health effects (4). A much-quoted example is a study by Ristow et al. showing that supplements containing 1,000 mg vitamin C and 267 mg vitamin E can obstruct induction of molecular regulators for insulin sensitivity and the endogenous antioxidant defence during physical exercise (5). The Norwegian regulations define minimum and maximum limits for various vitamins and minerals. The maximum limit for vitamin C and vitamin E are 200 mg and 30 mg respectively. According to an overview article by Hathcock et al., even higher supplements than these are considered safe (6). There are few studies available on the equivalent doses obtained through foods.

Products containing vitamins in amounts that exceed the maximum limit are available in Norway, but these are classified as prescription-free drugs and are intended for use over a restricted period of time in consultation with a doctor for treatment of vitamin deficiencies. This contrasts with nutritional supplements, which are normally used as additions to the diet over a longer period of time.

Sweden has different regulations. These define no maximum limits, and their nutritional supplements therefore contain far higher doses of nutrients. Outside of Europe, for example in the U.S., the daily recommended intake may be different from the values used in Norway. The discussion on the negative effects of nutritional supplements in other countries may therefore draw other conclusions than in Norway.

**Do we need nutritional supplements?**

Nutritional supplements contain nutrients that can also be ingested through a healthy diet. According to the regulations, it is illegal to claim or to render the impression that a balanced and varied diet in general will not provide a sufficient supply of vitamins and minerals (1). The Directorate of Health has defined the recommended intake of various vitamins, minerals and other nutrients (7). If the diet does not provide these, nutritional supplements can increase the body’s level of them, and thereby prevent symptoms of deficiencies.

The Norwegian dietary recommendations advise people with a very low energy intake (< 6.5 MJ/d or < 1 550 kcal/d) to use a multivitamin/mineral supplement (8).

«It is illegal to claim that nutritional supplements can prevent, heal or alleviate diseases, symptoms of diseases or pain»

This applies in particular to elderly persons who have a small food intake. In addition, people of dark complexion and people who are little exposed to sunlight should take a daily supplement of 10 μg of vitamin D in addition to what is ingested through food (8). The EU’s food safety authority, EFSA, is currently reviewing health claims for the various nutrients.

**Dishonest suppliers**

It is illegal to claim that nutritional supplements can prevent, heal or alleviate diseases, symptoms of diseases or pain. Such marketing of a nutritional supplement entails its classification as a drug. Dishonest suppliers who market their products with such claims contribute to spreading misconceptions about nutritional supplements.

There are also examples of producers who mix undeclared drugs and/or unapproved active substances and herbs into their products. The industry is collaborating with the Association of Herbal Manufacturers and Retailers to put a stop to these practices.

**References**


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**Stated conflicts of interest:** The author is employed as R&D director of NutraQ, a supplier of ingredients and ready-made nutritional supplements, including ingredients used as examples in this article.

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