

Communication 045/2026

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Vitamin D poisoning in infants

Vitamin D overdose can be potentially life-threatening

In July 2026, another case of severe vitamin D poisoning in an infant was reported in Germany. This was caused by an incorrect administration of a high-dose food supplement intended for adults, that had been sold online. The product was used instead of the vitamin D preparations normally recommended by doctors for infants. At the end of 2021, a similar case was first reported to the German Federal Institute for Risk Assessment (BfR).

As infants are among the groups at risk of vitamin D deficiency, the daily administration of a vitamin D supplement is recommended in Germany until the end of the child's second early summer to prevent rickets (impaired mineralisation of growing bones). The recommended daily dose is 400 to 500 International Units (IU), equivalent to 10 to 12.5 micrograms (μg) of vitamin D per day.

Vitamin D regulates the calcium and phosphate metabolism and promotes bone strength. It also contributes to the normal functioning of the immune system. However, excessive intake of vitamin D can pose health risks and lead to vitamin D toxicity (hypervitaminosis D).

Hypervitaminosis D is characterised by a markedly elevated calcium level in the blood (hypercalcaemia). In infants, symptoms may include tiredness, muscle weakness, vomiting, weight loss and failure to thrive. If hypercalcaemia persists over a prolonged period, it can lead to serious health consequences, particularly affecting the kidney function.

When taking vitamin D supplements, it is essential to follow the manufacturer's dosage recommendations carefully in order to avoid incorrect dosing. Parents and carers should therefore ensure that any vitamin D supplement given to children is suitable for infants and is administered at the correct dose. Particular caution is required with liquid supplements, as accidental overdosing can occur quickly with these. If in doubt, medical advice should be sought.

In humans, vitamin D is primarily produced in the skin under the influence of sunlight. The vitamin is involved in numerous metabolic processes in the body. These include, amongst other things, the regulation of calcium and phosphate metabolism, the promotion of bone density, and the contribution to the normal immune system function.

Infants are among the groups at risk of vitamin D deficiency, partly due to the low vitamin D content in breast milk, but also because they should not be exposed to direct sunlight, as their skin's natural protective mechanisms have not yet fully developed. Consequently, in Germany, daily administration of vitamin D preparations at a dose of 400 to 500 International Units (IU), equivalent to 10 to 12.5 micrograms (µg) of vitamin D, is recommended for all infants until the end of their second early summer.

Excessive intake of vitamin D can lead to poisoning, known as hypervitaminosis D. In Germany, several cases of vitamin D poisoning in children and adults have been reported in recent years. These were characterised by markedly elevated calcium levels in the blood (hypercalcaemia) and associated further health complications. In infants, the following symptoms, amongst others, have been described: poor feeding, vomiting, drowsiness, muscle weakness, weight loss, failure to thrive, constipation, increased urine output and dehydration, as well as electrolyte imbalance (low sodium, elevated calcium and potassium levels). Prolonged hypercalcaemia can lead to kidney stones and renal calcification, and may result in a potentially irreversible decline in kidney function.

For the standard medical recommendation in Germany regarding vitamin D prophylaxis against rickets in infants, only preparations containing vitamin D in the recommended amount of 400 to 500 IU, equivalent to 10 to 12.5 µg of vitamin D per daily dose, should be used. Preparations containing higher doses and/or accompanied by instructions for weekly or monthly administration carry an increased risk of accidental overdose. When purchasing vitamin D preparations for infants – particularly when buying them online – parents and caregivers should ensure that these are suitable for infants and intended for the prevention of rickets. The daily dose of 400 to 500 IU or 10 to 12.5 µg of vitamin D recommended by doctors for infants as well as the instructions for use provided with the manufacturer of the products should be followed carefully in order to avoid under- or overdosing. In particular, highly concentrated liquid preparations should not be used, as accidental overdosing can occur quickly with these products. If in doubt, seek advice from a paediatrician.

Regardless of the specific recommendations for vitamin D supplementation in infants, the following applies to older children and adults: with sufficient time spent outdoors, adequate exposure of the skin to sunlight and a balanced diet, an adequate supply of vitamin D can be achieved without taking vitamin D supplements. Adolescents and adults who wish to supplement vitamin D should opt for products containing up to approximately 20 µg of vitamin D (800 IU) per day, as this dose is not associated with any adverse health effects, even with long-term use and when other sources of vitamin D, such as fortified foods, are taken into account.

Further information on the BfR website about vitamin D

Questions and answers on vitamin D

<https://www.bfr.bund.de/en/service/frequently-asked-questions/topic/vitamin-d-sun-and-exercise-promote-a-good-supply/>

High single doses of vitamin D via food supplements at intervals of days or weeks associated with health risks

<https://www.bfr.bund.de/en/opinions/high-single-doses-of-vitamin-d-via-food-supplements-at-intervals-of-days-or-weeks-associated-with-health-risks/>

mikroco on vitamin D

<https://www.microco.info/vitamins/vitamin-d/>

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