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Preventive importance of vitamin D public health

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Vitamin D belongs to the group of liposoluble, biologically significant organic compounds. It exists in two major forms: vitamin D₂ and vitamin D₃. The most relevant forms for humans are ergocalciferol, produced in fungi and certain invertebrates and cholecalciferol, produced in vertebrates. Both arise through metabolic processes initiated by ultraviolet radiation. According to endocrinology guidelines, the recommended daily intake is: from 400 to 1000 (IU) for infants up to one year, then from 600 to 1000 IU for children aged 1 to 18 years, for adults the dose ranges from 1000 to 2000 IU. For adults over 75, the recommended daily intake is even up to 4000IU. The optimal blood concentration is approximately 30 µg/L. Deficiency states are classified as follows:

- vitamin D hypovitaminosis (20-29 µg/l),
- mild deficiency (10-19 µg/l),
- moderate deficiency (<9 µg/l)
- severe deficiency (<5 µg/l)

Vitamin D is also available as a registered pharmaceutical preparation, for example Vigantol. Every cell in the human body has vitamin D receptors, which indicates its role in numerous physiological processes. It contributes to bone metabolism, immune regulation and prevention of hyperinsulinemia and depression, and it may play a role in reducing the risk of cardiovascular and severe neurological diseases such as multiple sclerosis. Toxic effects may occur if vitamin D is taken without professional supervision in doses exceeding 40,000 IU per day. In such cases, corticosteroids—most commonly dexamethasone—are used to lower serum vitamin D levels.

To avoid harmful consequences of both deficiency and excess, it is safest for a healthcare professional to adjust the supplementation dose according to age and the degree of vitamin D deficiency in the blood.

Key words: prevention, vitamin D, vitamin D deficiency.