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Importance of Vitamin D For Children

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Abstract: Vitamin D is essential for children. This micronutrient helps absorb calcium and phosphorus - substances that are vital for children for the growth and proper development of teeth, skull bones and the musculoskeletal system in general. In addition, vitamin D is required for the normal functioning of the brain, gastrointestinal tract and endocrine system, helps strengthen the immune system and protect against infectious diseases: from common ARVI to such serious pathologies as tuberculosis.

Key words: vitamin D, ARVI, calcium

In children, vitamin D prevents the development of rickets, a disease associated with impaired bone development and softening. In adolescents and adults, vitamin D prevents the development of caries and gum pathologies, protects against osteoporosis (softening of bone tissue due to lack of calcium) and accelerates the healing of fractures. Vitamin D also increases resistance to viral diseases, which is extremely important, especially when your baby first went to kindergarten and began to get sick often. The need for the vitamin varies depending on its initial level in the blood, type of diet and time spent in the open sun. It is recommended to take 400 IU per day for infants up to 6 months, but the maximum allowable dose is 1000 IU. Children after 6 months. The recommended dose of the vitamin does not change, but the maximum amount is increased to 1500 IU. For lactating women, an intake of 800 IU is considered normal, the maximum dosage per day, bordering on toxic, is 4000 IU. To determine the need for calciferol, you can take a special blood test. The normal level of vitamin D content for an adult is 60-100 ng/ml, when using other measurement methods - 150-250 nmol/l. If you do not adhere to the recommended standards, a nursing woman's baby will be the first to suffer. He will have the consequences of his rickets for the rest of his life. Why is vitamin D deficiency dangerous? The musculoskeletal system of an adult will be fragile and weakened.

This causes difficulty walking, pain in the limbs, and brittle bones. Rickets also affects body composition:

• short stature

• incorrect posture

• pronounced parietal and frontal tubercles

• chest flattened on the sides

• narrowed pelvis.

Lumps in the wrist area may disappear as you heal. But mobility problems can only get worse with age. In especially severe cases, patients stop walking due to severe pain. Untreated rickets is fraught with seizures in adolescence and adulthood. Sometimes convulsions cause breathing to stop. Vitamin D deficiency leads to leaching of calcium and phosphorus from bones. In childhood, rickets develops due to vitamin D deficiency; in adults, softening of bone tissue (osteomalacia) and decreased bone density (osteoporosis) develop. Vitamin deficiency is especially dangerous in the first year of a child's life, when rapid bone tissue growth occurs. Currently, scientists are suggesting the effect of vitamin D deficiency on the development of cancer, as well as autoimmune and infectious diseases. If the amount of this nutrient is insufficient, the child may experience attacks of nervousness, anxiety, poor sleep, and increased sweating. You can also notice the appearance of signs of a serious disease, indicating disruptions in the processes of phosphorus-calcium metabolism - rickets: the fontanelle and sutures of the cranial bones close later than normal; the bones are modified, the ribs become soft, thickenings appear on them; the parietal and frontal tubercles grow; the head can take on a saddle or square shape; the cranial bones become soft, their shape is disrupted, and pain occurs; The child's teeth erupt with a delay, and their enamel is often subject to changes; the baby is diagnosed with decreased muscle tone and decreased growth rates; the child may suffer from frequent fractures; there is an increase in the size of the heart and other internal organs, disturbances in heart rhythm and anemia occur - iron deficiency anemia; The child's immunity becomes weakened, and various diseases often occur. Studies have shown that the amount of vitamin D in foods is unstable. For example, when examining milk from the same manufacturer, the vitamin D content in different batches fluctuated and could be less than declared within 20 IU. That is why in some countries manufacturers additionally fortify milk and dairy products with vitamin D. In order for the body to produce enough vitamin, it is necessary to be with the face and limbs open to the sun's rays until the midday sun (between 9 and 11 a.m. in winter) twice a week. For people with fair skin, five minutes is enough; dark-skinned people should stay in the sun for at least half an hour. However, for some children, full-fledged sunbathing is not enough to compensate for the deficiency of vitamin D in the body. Children suffering from diseases of the gastrointestinal tract, overweight, living in regions where there is little sunlight, children who move little, with dark skin, as well as children who do not want to be in the sun, all of them are at risk for vitamin D deficiency.

This micronutrient is synthesized in the body under the influence of sunlight, provided it is received along with certain foods. Unfortunately, natural sources are often in short supply - according to various sources, a deficiency of this vitamin is observed in 35-60% of children in different age groups (1, 2). Therefore, taking vitamin D supplements is required for almost all children, especially children under 3 years of age and those who are at risk: suffering from gastrointestinal diseases and/or obesity, receiving drug therapy or following a gentle diet. Preventing Vitamin D Deficiency Nonspecific prevention should be comprehensive and begin before the birth of the child. The expectant mother needs to spend a lot of time in the fresh air, move enough, follow a work and rest schedule, and monitor her diet (take more vegetables, fruits,

protein foods). In the last 3-4 months of pregnancy, calcification of the bones of the fetal skeleton begins, therefore, the need for calcium and, consequently, vitamin D increases. Pregnant women are recommended to take multivitamin preparations from the first weeks, and starting from the third trimester, take an additional 500-1500 IU vitamin A. It is very important to support and maintain breastfeeding for as long as possible. It is necessary to properly organize the daily routine of a nursing mother and a nutritious diet containing meat, dairy products, fish, and vegetables. Also, a kind of prevention for a growing baby is the introduction of complementary foods, daily walks in the air with an open face and limbs, therapeutic exercises, and general massage courses. Children who are bottle-fed must be given vitamin D. When selecting a mixture, it is necessary to take into account the presence of this vitamin and lactose, necessary for its absorption. Despite the fact that almost all adapted mixtures contain the vitamin, there is an opinion that its absorption from them is not active enough.

Specific prevention of vitamin D

Regardless of the nature of feeding, from 4 weeks of life it is necessary to carry out specific prevention of vitamin D deficiency in all children. For full-term infants, it is recommended to prescribe a prophylactic dose of 500 IU of an aqueous or oily solution of vitamin D daily, while for children at risk - 1000 IU. Recently, many researchers and practitioners have supported the opinion that the prevention of rickets is necessary for all children in the first three years of life without a break for the summer period, provided that the child is in his or her region, while children from 3 to 5 years old receive vitamin D give in the autumn-spring months.

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