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THE IMPORTANCE OF THE VITAMIN D AND ITS EFFECTS ON THE HUMAN ORGANISM

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The human body needs a variety of nutrients, for a normal fucntionality, and a major one of them is the fat-soluble Vitamin D. This vitamin can be found in several forms, but the most important for human body is Vitamin D2 and D3. The D2 form, named ergocalciferol, is produced by plants and mushrooms. It is also spread in different types of grains – rye, oat, wheat, barley.

The Vitamin D3 („The vitamin of the sun"), also named - cholecalciferol, of animal origin, is synthesized by the organism in 80-90% proportions. It is due to the contact of the B ultraviolet rays and the specific receptors on the skin. The D3 form is contained in some fish species: mackerel, herring, sardine, seafood, as well as liver, beef, milk and egg yolk. Vitamin D3 has superior properties, compared to the D3 form, because it increases the total level of vitamin D in the body, thus its action is long lasting.

The researches in the physical education and sports domains, put in evidence the necessity of maintaining in a good norm the concentration of the D vitamin in the organism of a sportsman, due to the fact that it supports the performance development and its keeping. After the ingestion, then absorbtion in the small intestine, the vitamin D3 is transported to the liver and kidneys, where it is activated and doing its beneficial actions:

- helps the assimilation of the calcium and phosphorus in the small intestine. After they are attached to the bones, theeth, as a response there is the effective skeletal mineralization. This way there are prevented a lot of pathologies: rickets, osteomalacia, osteoporosis, bone fracture;
- improves the neurocognitive processes, reduces the risk of depression, schizophrenia, Alzheimer's disease;
- prevents some form of cancer of the mammary glands, of the pancreas, colon and prostate;
- contributes to the normal endocrine of the glands: pituitary, thyroid, parathyroids, stimulates insulin secretion, thus preventing the diabete;
- diminishes the risk of cardiovascular diseases, adjusts the heart rate and prevents the miocardial infarction;
- keeps the muscular function;
- stimulates the imunity.

The necessar concentration of the vitamin D in the organism is 20 - 100 ng/ml. In case the level is below these indicators, it is reported a severe deficit of vitamin D. The deficiency of this important vitamin is caused by a series of factors, as: the insufficient exposure to the sunlight, intestinal absorbtion disorders of vitamin D, a reduced food intake, medication (steroids, laxatives, medicine for weight loss or lowering the cholesterol level).

The symptoms of the deficiency of vitamin D are the following: fatigue, weakness, fragile bones, muscle pain, inflamation, the delayed wound healing, hair loss, as well as theeth loss. It is vey necessary to maintain the vitamin D level in the limits of norm, because the excess of it can lead to hypercalcemia, manifested by nausea, vomiting, weakness, excessive thirst, frequent urination, stomach pain etc. Intoxication with vitamin D is recognisable when the level of this vitamin in the blood is above the norms.

In present, there is estimated a vitamin D deficiency all over the world, which has reached epidemical proportions, so the meaning of this work is to assess the vitamin D3 in adolescents' body, during puberty.

The research objectives:

- assessment of vitamin D3 concentration in the teenager's body;
- fulfilling the necessary amount of vitamin D3 in the form food supplements.

Research materials and methods. After estimating the concentration of vitamin D3 of the 7 tested young people, there was determined the reserve of vitamin D3, which is produced subcutaneous, as well as the concentration obtained after the food ingestion. After the gained resuslts and after the recognition of the results at the lower limit, or even below the lower limit, the young people got the vitamin D as a natural food supplement, in proportion of 1000 UI/day for 2 months.

The results of the testings and their analisys. Nowadays a marginalization beyond children is felt about their deprivation of free time spent outdoors. Recent researches made by britanic scientists show that a child spends less time outdoors that a prisoner, which is sitting in a highly secured prison.

Actually a lot of children, and even adults manifest symptoms of vitamin D insufficiency. This thing lead us to apreciate the level of vitamin D of young teens, to prevent some disorders, especially in the puberty period. After the administration of a natural supplement of vitamin D (100UI), we got the following results, exposed in the Table 1.

Table 1. The concentration of vitamin D3 in the body of adolescents before/after taking the food supplement

Nr. ord.	*Vitamin D concentration (I) (ng/ml)*	*Vitamin D concentration (II) (ng/ml)*
1.	20	35
2.	19	31
3.	29	40
4.	20	40

5.	21	39
6.	21	44
7.	24	42
M±m	***22,00 ± 2,46***	***38,71 ± 4,38***

After testing the concentration of vitamin D3, it was determined that the food intake, as well as sunlight exposure do not fulfill the necesary vitamin D norm in the young people's organisms.

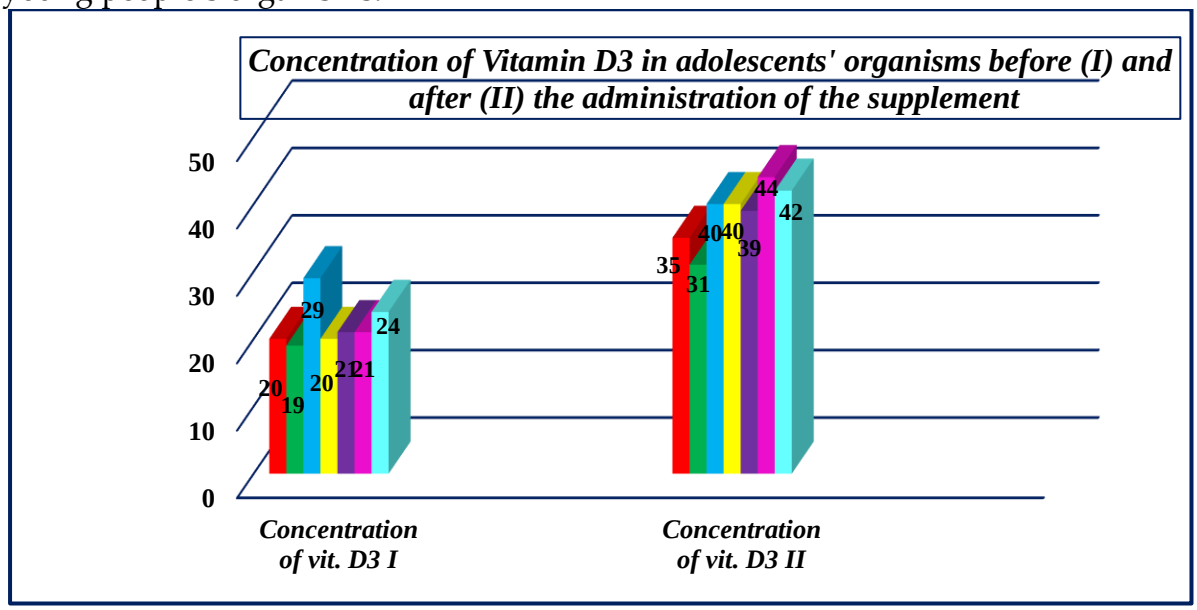

Figure 1. Concentration of vitamin D3 in adolescents' organisms (ng/ml).

This way, it was necessary to get an additional intake by taking the natural vitamin D3 supplement, the daily dose being 1000 UI. After 2 months of regularly administration the vitamin D3, it has has got a noticeable and favorable increasing in the blood. This was also marked by the young people tested, who felt a much higher physical and mental potential.

Conclusions and recommendations:

- the testing of Vitamin D3 in the adolescents' bodies has shown a subnormal level (average 22.00 ± 2,46 ng/ml);
- the supplementay administration of Vitamin D3, in case of deficiency is primordial, because the insufficiency causes a series of pathologies and disorders;
- fulfilling the intake of Vitamin D3 by taking the food supplement has increased the concentration of the vitamin (average 38,71 ± 4,38 ng/ml), which had an positive impact on the general state of the body, and especially on the physical form;
- we recommend a periodic checking of the Vitamin D3 concentration in the blood, for preventing the risk of metabolic disorders.

Keywords: vitamin D, organism, teenagers, food supplements, physical potential.