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Dietary intake of vitamin D in adults with overweight and obesity

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Abstract

Introduction: The aim of the present study is to study in detail the dietary intake of vitamin D in subjects with different BMI in relation to the status of serum vitamin D.

Material and Methods: They have been studied 264 individuals (41.3% were men and 58.9% were women), aged 19 to 60 years. Body weight and height, waist circumference, systolic and diastolic blood pressure were recorded. Body composition was assessed by bio-electrical impedance. Serum 25(OH)D Total, insulin,high-sensitivity C-reactive protein, glucose level and lipids were measured. Nutrition evaluation was performed through a 24-hour recall and FFQ in January-April 2014 and 2015.

Results: 27.2 % of the participants had normal weight, 24.6 % - overweight, 29.2 % - class I obesity, and 18.9 % – class II or III. 33.3 % had vitamin D deficiency, 40.2 % - insufficiency. It was found that the average daily intake of vitamin D for the whole group of subjects was 6.6 mcg/day. (for the women - 5.6 μg/d and for the men - 10.4 μg/d). In BMI-defined groups it was found that daily average daily intakes of vitamin D in subjects with normal BMI were 7.6 mcg / day, in those with overweight was 6.6 mcg / d, and in those with obesity was 6.0 mcg / day. 80.6% of the subjects were found to have daily average daily intakes of vitamin D under the EAR, which determines a high relative share of individuals with a potential risk of vitamin D deficiency. We found significant, mild to moderate correlations between daily average dietary intake of vitamin D and weight, % body fat (% BF); fat mass (FM), visceral fat (in women), muscle and fat-free mass (FFM), and height-adjusted indices : fat mass index (FMI) and fat-free mass index (FFMI), total body water (TBW in kg and %) and with some of metabolic variables (basal insulin and with the chronic inflammation marker - hs-CRP.

Discussion: Dietary intake of vitamin D is insufficient and correlates with serum vitamin D levels, FM(kg), %FM, visceral fat, FFM, muscle mass and some of metabolic variables. Male sex, higher education, younger than 30 years and normal BMI (up to 25.0 kg/m2) are the factors determining the higher dietary intake of vitamin D. This requires targeted supplementation and additional intake of vitamin D fortified foods to individuals at risk.

Conflict of Interest

There is no conflict of interest

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