Vitamin D stored in fat tissue during a 5-year intervention affects serum 25-hydroxyvitamin D levels the following year - DTU Orbit (31/12/2018)

Vitamin D and 25-hydroxyvitamin D (25(OH)D) are stored in adipose tissue, but the clinical relevance is uncertain. To evaluate changes in serum 25(OH)D and adipose tissue vitamin D levels, after stopping vitamin D supplementation. A prospective, double-blind cohort follow-up study. Clinical Research Unit at The University Hospital of North Norway. 76 subjects were included after participation in a 3-5 year prevention of type 2 diabetes study, and were administered 20,000 IU of vitamin D or placebo / week. During the 12-month follow-up period, blood samples were drawn at the beginning and after one, three, six, nine, and 12 months. Fat biopsies were taken at the start and end. Changes in 25(OH)D level in serum, and 25(OH)D and vitamin D levels in adipose tissue. 41 out of 42 subjects who had been given vitamin D, and 33 out of 34 subjects who were given the placebo completed the study. At the inclusion mean serum 25(OH)D levels were 122 and 71 nmol/L in vitamin D and placebo groups, respectively. Serum 25(OH)D remained significantly higher in the vitamin D group compared to the placebo group throughout, and was 84.5 and 73.1 nmol/L, respectively after 12 months. In the vitamin D group, adipose tissue vitamin D levels decreased by 52% over 12 months. 25(OH)D and vitamin D stored in adipose tissue after 3-5 years with vitamin D supplementation may have a clinically relevant effect on serum 25(OH)D levels the following year.

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