Vitamin D3 increases in abdominal subcutaneous fat tissue after supplementation with vitamin D3 - DTU Orbit (18/08/2019)

Objective: The objective was to assess the amount of vitamin D-3 stored in adipose tissue after long-term supplementation with high dose vitamin D-3. Design: A cross-sectional study on 29 subjects with impaired glucose tolerance who had participated in a randomized controlled trial with vitamin D-3 20 000 IU (500 μg) per week vs placebo for 3-5 years. Methods: Abdominal subcutaneous fat tissue was obtained by needle biopsy for the measurements of vitamin D-3 and 25-hydroxyvitamin D-3 (25(OH)D-3). Body fat was measured with dual-energy X-ray absorptiometry, and serum 25(OH)D-3 level was quantified. Results: In the subjects given vitamin D-3, the median concentrations of serum 25(OH)D-3, fat vitamin D-3, and fat 25(OH)D-3 were 99 nmol/l, 209 ng/g, and 3.8 ng/g, respectively; and correspondingly in the placebo group 62 nmol/l, 32 ng/g, and 2.5 ng/g. If assuming an equal amount of vitamin D-3 stored in all adipose tissue in the body, the median body store was 6.6 mg vitamin D-3 and 0.12 mg 25(OH)D-3 in those given vitamin D-3. Conclusions: Subcutaneous adipose tissue may store large amounts of vitamin D-3. The clinical importance of this storage needs to be determined.

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