Abstract

Title: Vitamin D supplementation and its effect on body composition in the overweight and obese – a systematic review

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Background: There is an increasing burden of overweight and obesity worldwide. The conditions lead to morbidity and lowered quality of life. Since there is research showing a connection between obesity and low levels of serum 25(OH)D, this raises the question if supplementation of vitamin D may have positive effects on body weight, waist circumference and body composition in the overweight and obese.

Objective: To investigate if there is enough scientific evidence to recommend vitamin D supplementation combined with nutrition therapy to overweight and obese patients.

Search strategy: The systematic collection of data was performed in the databases PubMed and Scopus. Search terms included were "vitamin D supplementation", "obesity" "cohort", "vitamin D", "vitamin D supplementation" and "overweight".

Selection criteria: Human studies with RCT, CCT or cohort design written in English or Swedish were included. The participants had to be over 18 years old, have a BMI>25 kg/m² and be generally healthy. Studies lasting less than 12 weeks were excluded.

Data collection and analysis: After the data collection the quality of the selected studies was analysed using Granskningmall för randomiserade studier and Granskningmall för observationsstudier och ickerandomiserade kontrollerade studier, both published by the SBU. The outcome measures of the studies were thereafter evaluated according to GRADE using Sammanfattande evidensformulär from the university of Gothenburg.

Main results: Six studies of RCT design were included in this systematic review. Summarized they showed strong scientific evidence that vitamin D supplementation raises the levels of 25(OH)D, moderate scientific evidence that vitamin D supplementation reduces visceral fat mass and limited scientific evidence that supplementation reduces body fat mass. There was also strong scientific evidence that vitamin D supplementation does not have a reducing effect on body weight, BMI or waist circumference.

Conclusions: There are indications that a recommendation of vitamin D supplementation to overweight and obese patients reduces visceral fat mass and possibly total fat mass. Vitamin D-supplementation does not have a reducing effect on body weight, BMI or waist circumference.