Vitamin D status in adolescent girls, elderly women and immigrants

Rikke Andersen, MSc

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Opponents: Peter Schwarz, Haakon Meyer, Norway, and Leif Mosekilde.

Supervisors: Lene Theil Skovgaard, Lars Ovesen, and Christian Mølgaard.

Correspondence: Rikke Andersen, Danish Food Institute, Department of Nutrition, Mørkhøj Bygade 19, 2860 Søborg, Denmark.

E-mail: ria@food.dtu.dk

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ABSTRACT

The PhD dissertation originates from the Faculty of Health Sciences of the University of Copenhagen, was performed at the National Food Institute, Department of Nutrition, and is based on data from the EU-project OPTIFORD. The dissertation addresses the issue of vitamin D status and the determinants of the vitamin D status in three population groups at risk of low vitamin D status: European adolescent girls and elderly women as well as Muslim immigrants. The effect of vitamin D supplementation on vitamin D status, bone turnover and bone mass was also investigated among immigrants.

Among 199 Caucasian teenage girls and 221 elderly women from Denmark, Finland, Ireland and Poland 37% of the girls and 17% of the women had S-25OHD concentrations below 25 nmol/l, and 92% of the girls and 67% of the women were below 50 nmol/l in the late winter season. Use of vitamin D containing supplements was a positive determinant for S-25OHD among girls and women .

Among 37 teenage girls, 115 women and 95 men of Pakistani origin living in Denmark more than 80% of the girls and women and 65% of the men had S-25OHD concentrations below 25 nmol/l. Almost all immigrants were below 50 nmol/l. Elevated S-iPTH concentrations and a negative association between S-iPTH and S-25OHD was found. Use of vitamin D containing supplements was a positive determinant for S-25OHD. Low vitamin D status was not associated with bone turnover markers or bone mass among these relatively young Pakistanis.

A 1-year lasting randomized double-blinded placebo-controlled intervention study showed that vitamin D status among Pakistani immigrants was increased 2-4 times to 41-54 nmol/l with relatively small dosages of vitamin D (10-20 µg/day), and with a concurrent decrease in S-iPTH. However, the improvement in vitamin D and PTH status did not benefit bone mass and bone turnover parameters.