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25-Hydroxyvitamin D supplementation and BMI change: A meta-analysis of randomized controlled trials

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Abstract

The impact of 25-hydroxyvitamin D (25[OH]D) supplementation on weight change remains controversial. The objective of this study was to summarize the effects of 25[OH]D supplementation (cholecalciferol or ergocalciferol) on BMI change through a meta-analysis of published clinical trials. We completed a systematic review of English articles, using MEDLINE (Ovid, Pubmed) from January 1, 1998 through January 1, 2013. The articles selected focused on 25[OH]D supplementation and body mass index (BMI) in randomized controlled trials (RCT's). The association between 25[OH]D and mean BMI change was estimated utilizing a random effects model. A total of 30 studies were reviewed and 9 were included in the meta-analysis. Total participants included 1651 adults (82.6% women and mean age 47.9 years) and 501 were supplemented with 25[OH]D and 518 were controls. Mean follow-up ranged between 6 to 196 weeks and mean daily 25[OH]D dose ranged from 200 IU to 1,110 IU. Five of the 9 studies included calcium supplementation in both groups. Average baseline BMI was 30.7 and 30.4 kg/m2 in the intervention and control groups, respectively. Five studies suggested a beneficial effect for 25[OH]D supplementation for BMI change whereas 3 studies showed no effect of 25[OH]D supplementation on BMI change, and one showed a non-perceptible change. Meta-analysis of BMI values at end of trial showed no statistically significant difference in BMI change by use of 25[OH]D supplementation. Based on existing published trials, oral 25[OH]D supplementation does not significantly impact BMI change.

Biography

Mora completed her MD in Mexico City and her MPH at Loyola University Chicago in 2012. During her time with the LUC MPH program, she traveled to Kumasi, Ghana as part of the Modeling the Epidemiologic Transition study (METS) to collect data. Her interests are in Global Public Health and Epidemiology. She is the research project coordinator of the A-HepNet ongoing study between Ghana (KNUST, KATH) and LUC.