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Effect of vitamin A, calcium and vitamin D fortification and supplementation on nutritional status of women: an overview of systematic reviews

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Abstract

Background: Micronutrient deficiency affects the health and development of vulnerable population such as children and pregnant women. Measures such as fortification of food and supplementation have been implemented to prevent or control deficiencies related to micronutrients.

Objective: To assess the effect of vitamin A, vitamin D, and calcium fortification and supplementation on nutritional status of women in reproductive age group. To assess the toxicities and adverse events related to intervention.

Methodology: Systematic reviews including RCTs on women of reproductive age group provided with vitamin A, vitamin D, and calcium supplementation or fortified food were included, to report all malnutrition-related outcomes due to deficiency of the abovementioned micronutrients. The Cochrane Database of Systematic Reviews, EPPI Centre, Campbell Collaboration, PubMed, Web of Science, and Scopus were searched electronically for English language publications, until 31 March 2018. Hand searching of the articles was done from the *Journal of Food Science and Technology*. Two independent reviewers selected the systematic reviews, extracted data, and assessed for the quality.

Results: A total of 16 systematic reviews were included in narrative synthesis. Supplementation of vitamin A was reported to result in increased maternal serum retinol concentrations and increased breast milk retinol concentration. It reduced the risk of anemia (Hb < 11 g/dL) and reduced maternal clinical infection. Vitamin D supplementation increased 25-hydroxy vitamin D levels. There was insufficient evidence for the effect on bone mineral density and serum calcium levels. Calcium supplementation did not have any significant effect on body weight, weight gain, and body mass index of the participants.

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