

Impact of a micronutrient dietary supplement on growth of school children in Tanzania

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[.C. Latham](#)

[Deborah Ash](#)

[Simon Rupia Tatala](#), Kam College of Health Sciences, Dar es Salaam, Tanzania

[Godwin D Ndossi](#)

Abstract

There is increasing evidence that in deficient populations providing micronutrients may improve the growth of undernourished children. This has been shown with iron and zinc and may be due to the fact that this improves appetite and food intake. In Tanzania an investigation has been undertaken to evaluate the impact of a micronutrient dietary supplement on iron, vitamin A and iodine status of school age children. This was a randomized, double-blind, placebo-controlled trial. Reported here is an evaluation of the impact of this supplement on nutritional status using anthropometry. The subjects were 830 primary school children in Mpwapwa District. The supplement consists of 25 gm of a white powder in a sachet which is mixed with 200 ml. water to produce an orange-flavoured beverage. One serving provides 30 to 120% of RDA for 10 micronutrients including 3 minerals (iron, zinc, and iodine) and 7 vitamins (A, C, folate, niacin, thiamin, riboflavin and pyrodoxine). The children consumed one serving every school day attended over a period of 180 days. Children at the baseline found to have intestinal parasites received a dose of albendazole. As reported elsewhere, biochemical determinations showed that both iron and vitamin A status were poor in large numbers of children at the onset of the study. There was no significant difference in weight for age and height for age in the fortified and non-fortified group at the baseline. In multivariate analyses, treatment group was the strongest explanatory variable for incremental change in height and weight. The mean change in weight for the fortified group was 1.8 kg vs. 1.0 kg in the non-fortified group ($p < .000$). The mean change in height for the fortified group was 3.4 cm vs. 2.7 cm in the non-fortified group ($p < .000$). The supplement was very popular with children. School staff were pleased with the program. We conclude that this dietary supplement using physiological not medicinal doses of micronutrients can improve growth of schoolchildren and reduce malnutrition as well as improve iron and vitamin A status.