RANDOMIZED COMPARISON OF 3 TYPES OF MICRONUTRIENT SUPPLEMENTS FOR HOME FORTIFICATION OF COMPLEMENTARY FOODS IN GHANA: EFFECTS ON GROWTH AND MOTOR DEVELOPMENT

Randomized comparison of 3 types of micronutrient supplements for home fortification of complementary foods in Ghana: effects on growth and motor development.  

ABSTRACT

BACKGROUND: The low micronutrient content of complementary foods is associated with growth faltering in many populations. A potential low-cost solution is the home fortification of complementary foods with Sprinkles (SP) powder, crushable Nutritabs (NT) tablets, or energy-dense (108 kcal/d), fat-based Nutributter (NB).

OBJECTIVE: The objective was to test the hypothesis that multiple micronutrients added to home-prepared complementary foods would increase growth and that the effect would be greatest in the presence of added energy from fat.

DESIGN: We randomly assigned 313 Ghanaian infants to receive SP, NT, or NB containing 6, 16, and 19 vitamins and minerals, respectively, daily from 6 to 12 mo of age. We assessed anthropometric status at 6, 9, and 12 mo; micronutrient status at 6 and 12 mo; motor development at 12 mo; and morbidity weekly. Infants (n = 96) not randomly selected for the intervention (nonintervention; NI) were assessed at 12 mo.

RESULTS: The groups did not differ significantly at baseline, except that the NB group had a higher proportion of boys and weighed slightly more. The dropout rate (15/313) was low. At 12 mo, after control for initial size, the NB group had a significantly greater weight-for-age z score (WAZ) (–0.49 ± 0.54) and length-for-age z score (LAZ) (–0.20 ± 0.54) than did the NT group (WAZ: –0.67 ± 0.54; LAZ: –0.39 ± 0.54) and the NT and SP groups combined (WAZ: –0.65 ± 0.54; LAZ: –0.38 ± 0.54); the difference with the NI group (WAZ: –0.74 ± 1.1; LAZ: –0.40 ± 1.0) was not significant. A lower percentage of the NI infants (25%) than of the intervention groups (SP: 39%; NT: 36%; NB: 49%) could walk independently by 12 months.

CONCLUSIONS: All three supplements had positive effects on motor milestone acquisition by 12 months compared with no intervention, but only NB affected growth.