

Animal source foods improve dietary quality, micronutrient status, growth and cognitive function in Kenyan school children: background, study design and baseline findings.

Abstract:

A previous longitudinal three-country study in Egypt, Kenya and Mexico found significant positive associations between intake of animal source foods (ASF) and growth, cognitive development and physical activity. To test for a causal relationship, a controlled school feeding intervention study was designed to test the hypotheses that ASF would improve micronutrient status, growth and cognitive function in Kenyan primary school children. Twelve rural Kenyan schools with 554 children were randomized to four feeding interventions using a local vegetable stew as the vehicle. The groups were designated as Meat, Milk, Energy and Control, who received no feedings. Feeding was carried out on school days for seven terms during 21 mo. Preintervention baseline measures included nutritional status, home food intake, anthropometry, biochemical measures of micronutrient status, malaria, intestinal parasites, health status and cognitive and behavioral measures. The measurements of each child were repeated at intervals over 2 y. Baseline data revealed stunting and underweight in approximately 30% of children and widespread inadequate intakes and/or biochemical evidence of micronutrient deficiencies, particularly of iron, zinc, vitamins A and B-12, riboflavin and calcium. Little or no ASF were eaten and fat intake was low. Malaria was present in 31% of children, and hookworm, amebiasis and giardia were widely prevalent. The outcomes measured were rates of change or increase during the intervention in cognitive function, growth, physical activity and behavior and micronutrient status. Hierarchical linear random effects modeling was used for analysis of outcomes.