Low plasma vitamin B-12 in Kenyan school children is highly prevalent and improved by supplemental animal source foods. J Nutr . 2007 Mar; 137 (3): 676-82 . PMID: 17311959 [PubMed - indexed for MEDLINE] McLean ED, Allen LH, Neumann CG, Peerson JM, Siekm

Citation:

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Abstract:

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The high prevalence of vitamin B-12 deficiency in many regions of the world is becoming recognized as a widespread public health problem, but it is not known to what extent this deficiency results from a low intake of the vitamin or from its malabsorption from food. In rural Kenya, where a previous study identified a high prevalence of inadequate vitamin B-12 intakes, this study examined whether plasma vitamin B-12 concentrations were associated with dietary sources of the vitamin at baseline and could be increased by supplementation with animal source foods (ASF). The 4 experimental groups in 503 school children were: 1) control (no food provided); 2) githeri (a maize and bean staple with added oil); 3) githeri + meat (githeri + minced beef); or 4) githeri + milk (githeri + milk). Feedings were isocaloric. Dietary data were collected at baseline, and biochemical data at baseline and after 1 and 2 y of feeding. Baseline plasma vitamin B-12 concentration was 193.6 +/- 105.3 pmol/L and correlated with % energy from ASF ($r = 0.308$, $P < 0.001$). The odds ratio for low plasma vitamin B-12 (<148 pmol/L), which occurred in 40% of children, was 6.28 [95% CI: 3.07-12.82] for the lowest vs. highest ASF intake tertile ($P < 0.001$). Feeding ASF (meat or milk) greatly reduced the prevalence of low plasma vitamin B-12 ($P < 0.001$). The high prevalence of low plasma vitamin B-12 concentrations in these children is predicted by a low intake of ASF, and supplemental ASF improves vitamin B-12 status.