Abstract

Background: National and international recommendations for the intake of B vitamins in adolescents consist of estimates and extrapolations from adult values. Due to increasing growth and therefore relatively high energy and nutrient requirements, adolescents are a vulnerable group from the nutritional point of view. In addition, a deficient intake of several B vitamins is strongly connected with the development of cancer, neural tube defects and cardiovascular diseases. Objective: The aim of this work is to assess dietary intake and status of B vitamins and homocysteine of European adolescents on the basis of published data. Methods: The database Medline (www.ncbi.nlm.nih.gov) was searched for terms like "vitamin B", "homocysteine", "Europe", etc. Studies published between June 1980 and December 2004 were analysed for this review. Results of the intake of B vitamins were compared with the EAR or AI, respectively, as recommended by the U.S. Institute of Medicine. Due to lacking reference values for adolescents, results of blood status as well as homocysteine were compared to different thresholds for adults. Results: Considering the limitations of the comparability between the reviewed studies e.g. by different methodologies, sample size, age groups, the average intake of B vitamins surpassed the EAR and AI. Boys were better supplied with B vitamins than girls. The intake decreased with increasing age in both genders. A possible deficiency of folate was noticed and girls in particular seemed to be more at risk. Clear regional tendencies for the vitamin intake could not be observed. Results of vitamin B6, B12, folate in blood, and homocysteine were levelled in-between the thresholds. Though the great standard deviation of folate increased the probability of a deficient supply in parts of the population. Conclusions: European girls seem to be at risk of folate deficiency. Supplements and fortified food were not taken into consideration by most of the published studies which additionally distorts the real intake. Standardized methods of dietary surveys and reference values for B vitamins as well as homocysteine still must be established. Hence, further investigations are of great relevance.

Keywords

B-Vitamins, Homocysteine, Adolescents, Europe, Review.