

Issue 90

In a nutshell

Simple dietary measures, such as eating breakfast cereals and other foods enriched with folate and other micronutrients, can significantly boost the levels of vitamins B₆, B₁₂ and folate in the elderly.

This can help lower elevated levels of homocysteine, which have been implicated in cognitive and cardiovascular problems in this age group.

Homocysteine & the elderly: diet and B vitamins

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NUTRITION RESEARCH REVIEW

Study one: enriched foods helps vitamin levels

Foods enriched with physiological doses of vitamins can correct abnormalities of vitamins B₁₂ and folate in the elderly, according to results from a recent Dutch study.

Subjects: 130 frail elderly.

Method: Four month randomized, controlled intervention trial. Subjects were given either a diet of foods enriched with multiple micronutrients (at or less than the Recommended Dietary Allowance levels), exercise, or a combination of these, with or without a social program. Vitamin status and neuropsychological function were tested before and after the intervention.

Results: The supplementation but not the exercise program resulted in significantly higher levels of vitamins B₁₂ and folate, and reductions in homocysteine and methylmalonic acid levels. There was no change in the neuropsychological test scores. See Table.

Reference: de Jong N et al. Nutrient-dense foods and exercise in frail elderly: effects on B vitamins, homocysteine, methylmalonic acid, and neuropsychological functioning. *Am J Clin Nutr* 2001; 73: 338-346

Study two: breakfast cereals lower homocysteine

Breakfast cereals can provide a very useful means of boosting folate and reversing elevation of homocysteine levels, according to results from an American study.

Subjects: Seventy-nine subjects who had been in the habit of regularly consuming a breakfast cereal containing at least 100 µg of folate per serving.

Method: The subjects were randomised into two groups. One consumed low folate breakfast cereal (< 10 µg/serve) and the other consumed folate-fortified breakfast cereal (200 µg/serve).

Results: The group who stopped replaced their regular breakfast cereal with the non-fortified alternative had an elevation of their plasma homocysteine levels. However, the group who continued to consume folate-fortified breakfast cereal maintained their levels.

Reference: Malinow M et al. Increased plasma homocyst(e)ine after withdrawal of ready-to-eat breakfast cereal from the diet: prevention by breakfast cereal providing 200 microg folic acid. *J Am Coll Nutr* 2000;19:452-7

Comments

In the previous issue (#89) we discussed the whole issue of vitamin B₁₂, B₆ and folate deficiency in the elderly and whether these deficiencies affect brain function. We emphasised the importance of a multi-nutrient approach, rather than just focusing on one nutrient in isolation.

Two of the questions that we raised in our discussion were:

1. whether the deficiencies are caused by dietary problems, malabsorption or some combination of causes.
2. whether it was worthwhile and necessary to prescribe supplements, or whether simple dietary advice would be sufficient to reverse these deficiencies.

The two studies we review this week are quite simple in their design, but help provide some answers to these questions. The first study used multi-vitamin enriched foods as an intervention, and showed that only small physiological doses are required over 17 weeks to produce marked improvements in the blood levels of all three vitamins, as well as improving the efficiency of the

vitamin-dependant metabolic pathway that is measured by plasma homocysteine levels.

The second study employed ordinary folate-supplemented breakfast cereal, and showed that this simple food can help older people to maintain adequate levels of folate.

These findings are important because they show the value of food-based solutions. Any nutritional therapy for a geriatric patient should, wherever possible, be simple and food-based. Such patients are often already taking a number of medications for other medical conditions, and may not have the financial ability to pay for more expensive prescription solutions. It is also reassuring to know that, even if these vitamin B deficiencies in the elderly are caused in part by malabsorption, the amounts of the vitamins required to correct them are no more than those found in food.

The role of these B vitamins in health function is a fascinating one.

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