

## Macrocytic anaemia status does not change in response to a physiological dose of folic acid in persons with suboptimal vitamin B<sub>12</sub> status

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Mandatory folic acid fortification has been advocated as the most effective method of protecting against neural tube defect pregnancies on a population basis<sup>(1)</sup>. Most European countries have not proceeded due to concerns of putative masking of vitamin B<sub>12</sub> deficiency. However, it is currently unknown what dose of folic acid masks vitamin B<sub>12</sub> deficiency.

The aim of this study was to assess the effect of a physiological dose of folic acid (400 µg/d) on the haematological profile of those with suboptimal vitamin B<sub>12</sub> status. Participants with serum vitamin B<sub>12</sub> levels between 130 and 200 ng/l were given either folic acid or placebo daily for 6 months in a randomized, double-blind, placebo-controlled study. Fasting blood samples were collected pre-intervention and at monthly intervals until completion to determine vitamin B<sub>12</sub>, folate and haematological status (mean cell volume, Hb and haematocrit).

Fourteen volunteers in the placebo group and 15 volunteers in the folic acid group completed the 6-month intervention. Volunteers who were Fe-deficient were excluded from analysis. There were no significant differences in vitamin B status and haematological markers between groups pre-intervention. Significant responses to intervention occurred in serum folate (increased;  $P < 0.001$ ), red blood cell folate (increased;  $P = 0.001$ ) and plasma homocysteine (decreased;  $P = 0.011$ ) in the folic acid group. Consumption of 400 µg of folic acid per d had no significant effect on haematological profile. The table shows the numbers of volunteers who were defined as having a normal haematological status at each stage of intervention in each group.

	Placebo			Folic acid		
	Pre-intervention	Post-intervention	<i>P</i>	Pre-intervention	Post-intervention	<i>P</i>
Mean cell volume	10	10	–	6	6	NS
Hb	9	9	NS	6	5	NS
Haematocrit	9	8	NS	6	5	NS

NS: non-significant. McNemar’s test was used to determine differences in haematological status pre- and post-intervention within groups ( $P < 0.05$ ).

This is the first folic acid supplementation trial in persons with apparent suboptimal vitamin B<sub>12</sub> status. Both groups had a normal haematological profile pre-intervention suggesting that mean cell volume should not be the sole diagnostic marker used to identify possible vitamin B<sub>12</sub> deficiency.

- Oakley GP Jr (1997) Let’s increase folic acid fortification and include vitamin B-12. *Am J Clin Nutr* 65, 1889–1890.