Dear Editor:

We have read the article by Samman et al. (1) with great interest. Looking more carefully at the information provided by this paper, we came across several major flaws. According to the dietary intake at baseline, the subjects consumed about 4 mg/d of \( \beta \)-carotene. Interestingly, this high intake resulted in low plasma \( \beta \)-carotene concentrations (0.24 and 0.22 \( \mu \)mol/L) when compared with plasma concentrations in U.S. and German study groups (2,3). There is no explanation for this discrepancy.

Our major criticism relates to the fact that the fruit and vegetable capsules used in this study, according to the manufacturer, were enriched with pure \( \beta \)-carotene, ascorbic acid, vitamin E and folic acid, which was not stated in the article. The only significant changes due to the intervention were an increase in \( \beta \)-carotene, ascorbic acid, vitamin E and folic acid. The supplemented micronutrients explain much of the reported effects and leave the question open as to whether the fruit and vegetable supplement itself induced any significant effects. Knowing that the capsules contained added micronutrients, it is not surprising that the reported increase in plasma folic acid concentration correlated with the increases of \( \beta \)-carotene and \( \alpha \)-tocopherol concentrations.

Furthermore, although the vegetable blend was made of carrot, broccoli, spinach, tomato juice extract and kale leaf powder, which contain a variety of carotenoids, only \( \beta \)-carotene increased significantly, whereas plasma lycopene and lutein+zeaxanthin did not change at all. This indicates that the supplemented pure \( \beta \)-carotene was bioavailable, but the native carotenoids from the vegetable capsules were either not contained in the capsules or were not bioavailable. The reported physiological effects can be explained solely by the added micronutrients. Overall, the conclusions of this article mislead the reader by suggesting that the mixed fruit and vegetable concentrates increase plasma antioxidants and reduce plasma homocysteine, and subsequently cardiovascular disease risk.

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LITERATURE CITED