

## A mixed fruit and vegetable concentrate increases plasma antioxidant vitamins and folate and lowers homocysteine concentrations in men

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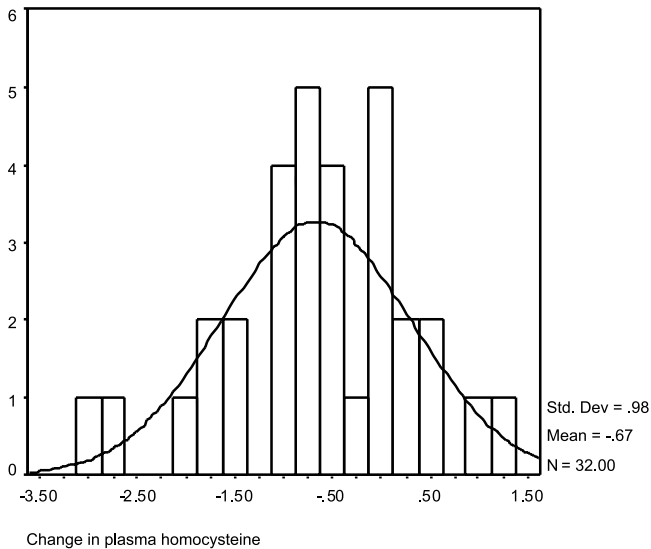
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Fruit and vegetable consumption is inversely associated with coronary heart disease (CHD) risk. The objective of the study was to determine the effect of supplementation with dehydrated juice concentrates from mixed fruit and vegetables on selected plasma vitamins and antioxidant status. We assessed CHD risk by determining the concentrations of homocysteine, lipids, glucose and insulin.

Men were recruited to participate in a randomised double blind cross over trial with 2 periods of 6 w, separated by 3 w of wash-out. Supplementation with 4 capsules of Juice Plus™ was compared with physically similar placebo capsules.

Thirty two men (13 smokers, 19 non-smokers) completed the study with a mean compliance of 88%. Compared with placebo, supplementation increased the concentrations of plasma  $\beta$ -carotene ( $0.57 \pm 0.42$  vs  $2.95 \pm 1.67$   $\mu\text{mol/L}$ ;  $P < 0.0001$ ), ascorbic acid ( $71.8 \pm 18.9$  vs  $81.8 \pm 16.0$   $\mu\text{mol/L}$ ;  $P < 0.002$ ) and folic acid ( $24.5 \pm 10.0$  vs  $44.9 \pm 16.9$   $\text{nmol/L}$ ;  $P < 0.0001$ ). Plasma homocysteine was reduced in the majority of subjects (Fig 1) and inversely related ( $r = -0.40$ ,  $P < 0.001$ ) to serum folate concentrations.



**Figure 1.** Individual plasma homocysteine response following supplementation with a mixed fruit and vegetable concentrate.

Plasma vitamin C was positively correlated with the resistance of LDL to oxidation ( $P < 0.05$ ) and plasma ferric reducing/antioxidant power (FRAP) tended to increase.

In the absence of dietary modification, supplementation with a fruit and vegetable concentrate produced responses consistent with a reduction in CHD risk.