A Mixed Fruit and Vegetable Concentrate Increases Plasma Antioxidant Vitamins and Folate and Lowers Plasma Homocysteine in Men

Samman S, Sivarajah G, Man JC, Ahmad ZI, Petocz P, Caterson ID. A mixed fruit and vegetable concentrate increases plasma antioxidant vitamins and folate and lowers plasma homocysteine in men. J Nutr. 2003 Jul;133(7):2188-93. doi: 10.1093/jn/133.7.2188. PMID: 12840177.

Juice Plus+
Science Institute
Advancing plant-based nutrition

BACKGROUND

- There is an inverse relationship between fruit and vegetable consumption and the risk of coronary heart disease (CHD).
- Fruit and vegetables are a source of nutrients that have been observed to possibly reduce:
  - LDL cholesterol
  - Blood pressure
  - Homocysteine
- In addition, a high intake of fruit and vegetables may improve the antioxidant status and endothelial function.

Juice Plus+ Science Institute
Advancing plant-based nutrition

AIM

The aim of this study was to evaluate the bioavailability of selected carotenoids and vitamins from a fruit and vegetable juice powder concentrate (FV) and their impact on antioxidant status, homocysteine, plasma lipids, and insulin resistance in men.

Juice Plus+
Science Institute
Advancing plant-based nutrition

METHODS

Double-blind, randomized, placebo-controlled, crossover trail

- Subjects: 32 healthy men, 13 smokers and 19 non-smokers
- Inclusion criteria:
  - Age: 18-50 years
  - No nutritional supplements or medications
  - BMI < 30 kg/m^2
  - No reported chronic disease and no history of metabolic disease
- Groups:
  - Intervention Group: took an encapsulated fruit and vegetable juice powder concentrate (FV; Juice Plus+®)
  - Placebo Group
- Cross over design: 2 intervention periods (6 weeks), separated by a 3-week wash-out period.
- Blood samples were collected at baseline, on day 21, and after the full intervention period (6 weeks). After the group crossover the blood sample collection pattern was repeated.
- Coronary heart disease risk was assessed by measuring the concentrations of homocysteine, lipids, lipoproteins, glucose and insulin.

Juice Plus+ Science Institute
Advancing plant-based nutrition

MAIN RESULTS

- Compared to placebo, FV significantly increased the concentrations of plasma ascorbic acid (AA), β-carotene, retinol, folic acid and α-tocopherol.
- After supplementation blood levels of folate significantly rose by 78.8% and homocysteine levels significantly decreased by 8.4%.
- Levels of β-carotene rose 4-fold, while concentrations of AA and α-tocopherol increased 32% and 9% respectively.
- There was a positive association between plasma levels of AA and resistance of LDL to oxidation.
- Plasma glucose, insulin, and lipid concentrations were unaffected. Results were similar among smokers and non-smokers.

Juice Plus+ Science Institute
Advancing plant-based nutrition

CONCLUSION

"In conclusion, supplementation with a mixed fruit and vegetable concentrate increases plasma ascorbic acid, β-carotene and folate, and lowers plasma homocysteine."

Article available: https://pubmed.ncbi.nlm.nih.gov/12840177/

Juice Plus+
Science Institute
Advancing plant-based nutrition