

Effects of a plant-based fatty acid supplement and a powdered fruit, vegetable and berry juice concentrate on omega-3-indices and serum micronutrient concentrations in healthy subjects

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AIM

The aim of this clinical trial was to investigate whether supplementation with different dosages of omega fatty acids from an omega blend affects omega-3-indices in healthy women and men.

METHODS

Randomized, controlled, open-labelled, 4 arm, parallel-grouped, clinical trial

68 non-smoking adults aged 20 – 65 years

- + Control group:** adhering to habitual diet
- + Intervention group 1:** ingesting 2 capsules of the omega fatty acid blend
- + Intervention group 2:** ingesting 4 capsules of the omega fatty acid blend
- + Intervention group 3:** ingesting 2 capsules of the omega fatty acid blend and 6 capsules of fruit vegetable and berry (FVB) juice concentrate

MAIN RESULTS

- ✚ The intake of 2 and 4 capsules of the omega blend was able to increase the Omega 3 index significantly after 8 and 16 weeks
- ✚ The combined ingestion of 2 capsules of the omega blend and 6 capsules of the FVB juice concentrates increased the Omega 3 index, the serum concentrations of vitamins C and E and carotenoids.
- ✚ No adverse effects on hepatic, kidney, or thyroid functions or changes in blood lipids were observed

CONCLUSION

Both products can be applied as supplemental contributions to a healthy diet because they passed the high-levelled safety checks of a clinical trial and provide bioavailable nutrients, ingested alone or in combination.

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ABSTRACT

The major aim of this controlled, randomised, open-labelled, parallel-grouped, clinical trial was to investigate whether supplementation with different dosages of omega-3 fatty acids (0.5 g/d and 1 g/d) from a plant-based fatty acid supplement affected omega-3-indices (O3I) in well-nourished, healthy people. In addition, the combined ingestion of the plant-based fatty acid supplement, together with an encapsulated fruit, vegetable and berry (FVB) juice powder concentrate, was applied in order to observe the absorption of certain micronutrients and to examine some aspects related to the safe consumption of the products. The data demonstrate that the intake of only 0.5 g/day of omega-3 fatty acids from a vegan supplement was able to increase the O3I significantly after 8 and 16 weeks. The combined ingestion with the FVB supplement concurrently increased serum concentrations of specific vitamins and carotenoids without effects on hepatic, kidney and thyroid function or changes in blood lipids.

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KEYWORDS

Omega-3-Index; plant-based supplements; omega-fatty acids; micronutrients

Introduction

Omega-3 fatty acids (n3FAs) have been of great interest to researchers for many years. Evidence from various studies shows the importance of these compounds on humans' health and their positive effects on the cardiovascular system and blood lipids regulation (EFSA 2009; Mozaffarian and Wu 2011; Skulas-Ray et al. 2011; Leslie et al. 2015; Del Gobbo et al. 2016; Harris et al. 2017a), cognitive performance/reserve (Abubakari et al. 2014; Bo et al. 2017; Amen et al. 2017), bone health (Mangano et al. 2014; Jorgensen et al. 2016; Kuroda et al. 2017; Lavado-Garcia et al. 2018) and gastrointestinal function (Calder 2009; Costantini et al. 2017). The omega-3 polyunsaturated fatty acids (n3 PUFA) eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA) are essential fatty acids that humans are not able to synthesise, hence

have to be supplied through the diet. Rich sources of n3FAs include fatty fish such as salmon, tuna and sardines, as well as krill and algae. National and international public health departments (NHMRC 2013; USDHHS&USDA 2015; FMHWA 2017) recommend a weekly consumption of 150–300 g of fish and seafood to the general healthy adult population in order to ingest appropriate amounts of EPA and DHA. Based on the current body of scientific evidence the Global Organisation of EPA and DHA (GOED) even recommends 500 mg of EPA and DHA per day, in order to lower the risk of coronary heart disease (CHD), 700 mg/day of EPA and DHA (of which at least 300 mg should be DHA) for pregnant and lactating women and 1000 mg/day or more for secondary prevention of CHD, for maintenance of normal blood pressure and lowering triglycerides (GOED 2017).

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