

The effect of walnuts compared to fatty fish on eicosanoids and cytokines in blood

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N-3 fatty acids have anti-inflammatory properties. However, since eicosapentanoic acid (EPA) and not α -linolenic acid (ALA) is the substrate for the cyclooxygenase enzymes and a precursor to eicosanoids, it is unclear whether ALA from walnuts and EPA from fish have similar effects on inflammation. Our objective was to compare the effects of walnuts and fatty fish on circulating inflammatory markers. Under controlled metabolic feeding conditions and randomized crossover design, 25 subjects alternately consumed a control, walnut (1.5 oz/d walnuts, 6 times/wk) or fish diet (8 oz /wk salmon) for 4 weeks each. The walnut (5.43g/d ALA) and fish (760 mg EPA +DHA/d) diet resulted in a significant decrease in plasma 11-dehydro thromboxane B2 (11-D-TXB2) and prostaglandin E metabolite (PGEM) compared to control diet, with no differences between the walnut and fish diets. No significant differences were observed in blood IL-1 β , IL-6, TNF- α and CRP among the three diets, nevertheless, walnut diet values were lower. The fish diet decreased the concentration of sICAM-1 compared to control diet ($p < 0.05$). The walnut diet decreased sE-selectin compared to the fish diet ($p < 0.05$). In conclusion, walnuts and fish have similar effects in decreasing plasma 11-D-TXB2 and PGEM, no effect on blood IL-1 β , IL-6, TNF- α and CRP, but different effects in sICAM-1 and sE-selectin.