Low-dose fish oil supplementation increases serum adiponectin without affecting inflammatory markers in overweight subjects.


Source

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Abstract

Obesity is associated with an increased risk of cardiovascular disease, whereas long-chain n-3 polyunsaturated fatty acids (PUFAs) from fish may have cardioprotective and anti-inflammatory effects. This study aimed to investigate the hypothesis that acute and short-term supplementation with a low dose of marine n-3 PUFA exerts an anti-inflammatory effect in overweight subjects. In a double-blind, placebo-controlled trial with 2 parallel groups, 50 overweight subjects were randomized to receive daily supplementation with 2 capsules containing either 2 g of fish oil (1.1 g marine n-3 PUFA) or 2 g of olive oil. Blood samples and adipose tissue biopsies were collected at baseline, after 1 day (acute effect), and after 6 weeks (short-term effect) of supplementation. No significant effects were seen after supplementation for 1 day, but after 6 weeks, subjects receiving fish oil had a significant increase in the n-3 PUFA content of granulocytes and adipose tissue (P < .01). Serum adiponectin levels were increased by 0.55 μg/mL (95% confidence interval, 0.02-1.08) in the fish oil group compared with the control group (P = .04) after 6 weeks of supplementation. Levels of interleukin 6 were inversely correlated to the marine n-3 PUFA content of granulocytes and adipose tissue at baseline (excluding α-linolenic acid). In conclusion, daily supplementation with 1.1 g of marine n-3 PUFA significantly increased serum adiponectin, but the effect was small, and no overall anti-inflammatory effect of the supplement could be demonstrated.

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