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## Sesame oil and vitamin E co-administration may improve cardiometabolic risk factors in patients with metabolic syndrome: a randomized clinical trial

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### Abstract

**Objectives:** Metabolic syndrome (MetS) represents a clustering of metabolic abnormalities that are associated with an increased risk of type 2 diabetes and cardiovascular disease. We aimed to evaluate the effects of sesame oil enriched with vitamin E (vit E), sesame oil alone and sunflower oil on lipid profile, fasting blood glucose (FBG), malondialdehyde (MDA), high-sensitivity C-reactive protein (Hs-CRP), homeostatic model assessment (HOMA-IR), and blood pressure (BP) in patients with MetS.

**Subjects:** Overall, 75 individuals with MetS (aged 30–70 years) participated in this randomized, single-blind controlled trial. Patients were randomly allocated to: (1) Group A (n = 25): sesame oil (30 ml/day) enriched with vit E (400 mg/day), (2) Group B (n = 25): sesame oil (30 ml/day), (3) Group C (n = 25): sunflower oil (30 ml/day). Anthropometric data, dietary intake, blood pressure, and biochemical markers, including fasting serum lipids, FBG, serum insulin, MDA, and hs-CRP were measured at baseline and at week 8.

**Results:** In individuals in the sesame oil enriched with vit E group (Group A), there were significant reductions in serum total cholesterol (TC), triglycerides (TG), FBG, HOMA-IR, MDA, hs-CRP, high-density lipoprotein (HDL-C) systolic and diastolic BP (for all the comparison  $p < 0.02$ ). Similarly, in Group B (taking sesame oil alone), TC, TG, FBG, HOMA-IR, MDA, systolic and diastolic BP were significantly improved (for all the comparison  $p < 0.025$ ), while there were no significant changes in serum HDL (baseline =  $35.9 \pm 7.2$  mg/dL vs.  $36.4 \pm 6.2$  mg/dL,  $p = 0.432$ ) and hs-CRP (baseline =  $4.38 \pm 1.34$  mg/dL vs. week 8 =  $3.96 \pm 1.7$  mg/dL,  $p = 0.057$ ) in second group. No significant changes in any of the studied clinical and anthropometric data were found in Group C (on sunflower oil).

**Conclusion:** Sesame oil ( $\pm$ vit E) was shown to beneficially affect several cardiometabolic indices (including lipids, FBG, BP, HOMA-IR, and MDA) in patients with MetS.

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