

Anti-Atherogenic Properties of Extra Virgin Olive Oil

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Extra virgin olive oil (EVOO) is an important constituent of the Mediterranean diet as well as whole grains, vegetables, fruits and nuts. Recent meta-analysis showed that compared to low polyphenol olive oil, high polyphenol EVOO significantly improved measures of malondialdehyde, oxidized low-density lipoprotein (LDL), high-density lipoprotein-cholesterol (HDL-C), inflammatory markers and blood pressure [1], suggesting significant anti-atherogenic effects of EVOO.

In a randomized, double-blinded, placebo-controlled clinical trial (RCT), 41 adult women with excess body fat received daily high-fat breakfasts containing 25 mL of soybean oil (control group, n = 20) or EVOO (EVOO group, n = 21) during nine consecutive weeks [2]. Fat loss was about 80% higher on EVOO compared to the control group (-2.4 ± 0.3 kg vs. -1.3 ± 0.4 kg, P = 0.037). EVOO also reduced diastolic blood pressure when compared to control (-5.1 ± 1.6 mm Hg vs. $+0.3 \pm 1.2$ mm Hg, P = 0.011).

The RCT was conducted on 60 already diagnosed cases of type 2 diabetes and dyslipidemia [3]. EVOO showed 8-12% increase in HDL-C. EVOO has been also reported to promote cholesterol efflux by HDL, improving HDL functionality [4]. EVOO consumption reduced the age-related decrease in HDL and paraoxonase-1 anti-inflammatory activities [5]. EVOO intake increased HDL-C and decreased total cholesterol (TC)/HDL-C and triglyceride (TG)/HDL-C in postmenopausal women [6].

Thirty impaired fasting glucose (IFG) patients were randomly allocated to a meal containing or not 10 g of EVOO in a cross-over design [7]. Before, 60 min and 120 min after lunch, a blood sample was taken. EVOO was associated with a reduction of glucose (P = 0.009) and dipeptidyl-peptidase-4 (DPP4) activity (P < 0.001) and a significant increase of insulin (P < 0.001) and glucagon-like peptide-1 (GLP-1) (P < 0.001). Furthermore, the meal containing EVOO showed a significant decrease of TG (P = 0.002) and Apo B-48 (P = 0.002) compared with the meal without EVOO. EVOO use was also associated with improved post-prandial blood glucose and LDL-C in healthy subjects [8].

Habitual consumption of EVOO has been also reported to improve endothelial function in patients with prediabetes and diabetes [9]. Further, the systematic review on beneficial

effects of EVOO, and in conjunction with the Mediterranean style diets, reported that EVOO improved inflammation, oxidative stress, coagulation, platelet aggregation, fibrinolysis, and endothelial function [10].

In conclusion, although EVOO may have possible anti-atherogenic properties, the real beneficial effects of EVOO on human health need to be clarified in new well-designed clinical studies.

Conflict of Interest

The author declares that he has no conflict of interest concerning this article.

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