



Health effects of olive oil and the mediterranean diet

# CHOLESTEROL AND BLOOD LIPIDS

## EFFECT SIZE



Olive oil consumption decreased total cholesterol (TC), LDL cholesterol (LDL-C), and triglycerides (TG) significantly less than other plant oils, and increased HDL cholesterol (HDL-C) significantly more than other plant oils.

Ghobadi, S., et al., Comparison of blood lipid-lowering effects of olive oil and other plant oils: A systematic review and meta-analysis of 27 randomized placebo-controlled clinical trials. Crit Rev Food Sci Nutr, 2018: p. 1-15.

## What is the effect?

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## WHAT IS THE QUALITY OF THE EVIDENCE?

**10** grams of olive oil per day



Compared to another plant oil as the control

**27** randomised controlled trials



At least 2 weeks duration

## KEY RESULTS



**No effect for Apolipoprotein A (Apo A) or Apolipoprotein B (Apo B)**

### INCREASE IN HDL-C:

olive oil increased HDL-c significantly more vs. all other plant oils (weighted mean difference [WMD] = 1.37 mg/dl; 95% CI: 0.4, 2.36; P = 0.007) (n = 26 studies)

### DECREASED LDL-C:

olive oil decreased LDL-c significantly less vs. other plant oils (WMD= 4.2 mg/dl; 95% CI: 1.4, 7.01; P = 0.003) (24 studies)

### DECREASED TOTAL CHOLESTEROL:

olive oil decreased TC significantly less vs. other plant oils (WMD= 6.27 mg/dl; 95% CI: 2.8, 10.6; P = 0.001) (26 studies)

### DECREASED TRIGLYCERIDES:

olive oil decreased TG significantly less vs. other plant oils (WMD = 4.31 mg/dl; 95% CI: 0.5, 8.12; P = 0.03) (25 studies)

## WHAT TO KEEP IN MIND?

### Limitations

- The diets consumed during intervention were not controlled and constant among all interventions, with many studies not reporting its energy and macronutrient composition.

## WHAT'S THE BOTTOM LINE?

**Olive oil was less potent in lowering TC, LDL-C, and TG than other plant oils.**

This difference was more evident for PUFAs- rich oils, especially n-3 rich ones. However, time was an important variable. The differences in reduction of TC, LDL-C, and TG compared to other plant oils were not evident in interventions with durations higher than 30 days. Olive oil increased HDL-cholesterol to a greater extent than other plant oils, including in studies longer than 30 days.

## OTHER REVIEWS

George, E.S., et al., The effect of high-polyphenol extra virgin olive oil on cardiovascular risk factors: a systematic review and meta-analysis. Crit Rev Food Sci Nutr, 2018: p. 1-138.

Hohmann, C.D., et al., Effects of high phenolic olive oil on cardiovascular risk factors: A systematic review and meta-analysis. Phytomedicine, 2015. 22(6): p. 631-40.

Nordmann, A.J., et al., Meta-analysis comparing Mediterranean to low-fat diets for modification of cardiovascular risk factors. Am J Med, 2011. 124(9): p. 841-51 e2.

Serra-Majem, L., B. Roman, and R. Estruch, Scientific evidence of interventions using the Mediterranean diet: a systematic review. Nutr Rev, 2006. 64(2 Pt 2): p. S27-47.

