



## Health effects of olive oil and the mediterranean diet

# METABOLIC SYNDROME

## EFFECT SIZE



**The Mediterranean diet was inversely associated with metabolic syndrome, although the data are limited and come mostly from cross-sectional studies.**

Godos, J., et al., Adherence to the Mediterranean diet is inversely associated with metabolic syndrome occurrence: a meta-analysis of observational studies. *Int J Food Sci Nutr*, 2017. 68(2): p. 138-148.

## What is the effect?

↓  
**Decreased risk**  
of Metabolic Syndrome with  
a Mediterranean Diet

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## WHAT IS THE QUALITY OF THE EVIDENCE?

Occurrence or risk of  
**metabolic syndrome**



Adherence to a Mediterranean diet

**12** observational studies



Systematic literature and meta-analysis

## KEY RESULTS



### METABOLIC SYNDROME:

The highest adherence to a Mediterranean diet was associated with a 19% decreased risk compared to the lowest adherence (RR: 0.81, 95%CI: 0.71, 0.92) (12 studies).

The protective association was found in both cross-sectional and prospective studies.

### INDIVIDUAL COMPONENTS OF THE METABOLIC SYNDROME

(4 studies): High adherence to the Mediterranean diet:

Reduced the risk of high waist circumference (RR = 0.82, 95%CI 0.70, 0.96).

Reduced the risk of high blood pressure (RR = 0.87, 95%CI 0.77, 0.97).

Reduced risk of low HDL-C levels (RR = 0.87, 95%CI 0.77, 1.00).

Null results for triglycerides.

Null results for blood glucose.

## WHAT TO KEEP IN MIND?

### Limitations

- All studies were observational, precluding a causal relationship.
- There was evidence of heterogeneity across the studies.
- There were different dietary scores used to evaluate the adherence to the Mediterranean diet, which may introduce bias.
- Individuals labelled as "highly adherent" to the Mediterranean diet may still have very different dietary patterns with respect to food groups, depending on their geographical region.

## WHAT'S THE BOTTOM LINE?

**A Mediterranean dietary pattern was associated with a 19% reduced risk of Metabolic syndrome, but the available evidence is limited, coming mostly from cross-sectional studies.**

More research from prospective cohorts and clinical trials are required to better understand the association.

## OTHER REVIEWS

Garcia, M., et al., The Effect of the Traditional Mediterranean-Style Diet on Metabolic Risk Factors: A Meta-Analysis. *Nutrients*, 2016. 8(3): p. 168.

Ahluwalia, N., et al., Dietary patterns, inflammation and the metabolic syndrome. *Diabetes Metab*, 2013. 39(2): p. 99-110.

Espósito, K., et al., Mediterranean diet and metabolic syndrome: an updated systematic review. *Rev Endocr Metab Disord*, 2013. 14(3): p. 255-63.

Kastorini, C.M., et al., The effect of Mediterranean diet on metabolic syndrome and its components: a meta-analysis of 50 studies and 534,906 individuals. *J Am Coll Cardiol*, 2011. 57(11): p. 1299-313.

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.

