

# A Mediterranean diet rich in olive oil may protect your bones

24 August 2012



New research suggests that a key ingredient to keeping osteoporosis in check may be found in the traditional Mediterranean diet—olive oil.

Osteoporosis is a disease where the density and quality of bone is progressively reduced, it affects 1 in 3 women and 1 in 5 men over the age of 50, and it is estimated that the direct cost of osteoporosis in Europe is around EUR 32 billion a year. This disease is considered to be one of the most common, debilitating and costly chronic diseases in Europe. This is why the results of the Spanish research group are important. The results of their study are to be published in the *Endocrine Society's Journal of Clinical Endocrinology and Metabolism* (JCEM), in which they show that consumption of a Mediterranean diet enriched with olive oil for two years is associated with increased serum osteocalcin concentrations, suggesting a protective effect on bone.

Past studies have shown that the incidence of osteoporosis is lower in the Mediterranean basin when compared to other European countries. Part of this reason may lie in the traditional Mediterranean diet which is rich in [fruits and vegetables](#) and features a high intake of olives and

olive oil.

'The intake of olive oil has been related to the prevention of osteoporosis in experimental and in vitro models,' said José Manuel Fernández-Real, MD, PhD, of Hospital Dr Josep Trueta in Girona, Spain and lead author of the study. 'This is the first randomised study which demonstrates that olive oil preserves bone, at least as inferred by circulating bone markers, in humans.'

The study utilised participants from the Prevencion con Dieta Mediterranea (PREDIMED) study. The PREDIMED study is a large, parallel group, randomised, controlled trial aimed to assess the effect of the Mediterranean diet on the prevention of cardiovascular diseases. The main objective was to evaluate whether the Mediterranean diet supplemented with extra-virgin olive oil or tree nuts prevents cardiovascular diseases (cardiovascular death, myocardial infarction and/or stroke), by comparison with a low-fat diet.

The participants in this study were 127 community-dwelling men aged 55 to 80 years who were randomly selected from one of the PREDIMED study centres and who had at least 2 years of follow-up. The subjects were elderly without prior cardiovascular disease but had a diagnosis of type 2 diabetes or harbouring at least three cardiovascular risk factors, namely hypertension, dyslipidaemia or a family history of premature cardiovascular disease.

Once selected, participants were then randomly assigned to three intervention groups: Mediterranean diet with mixed nuts, Mediterranean diet with [virgin olive oil](#) and a low-fat diet.

Biochemical measurements of osteocalcin, glucose, total cholesterol, HDL-cholesterol and triglycerides were performed at baseline and after two year follow-up on fasting blood samples. Researchers found that only consumption of the

Mediterranean diet with olive oil was associated with a significant increase in the concentrations of total osteocalcin and other bone formation markers. There were also no significant changes in serum calcium in subjects taking olive oil, whereas serum calcium decreased significantly in the other two groups.

'It's important to note that circulating osteocalcin was associated with preserved insulin secretion in subjects taking [olive oil](#),' added Fernández-Real. 'Osteocalcin has also been described to increase insulin secretion in experimental models.'

**More information:** Fernández-Real, J.M., et al. 'A Mediterranean Diet Enriched with Olive Oil Is Associated with Higher Serum Total Osteocalcin Levels in Elderly Men at High Cardiovascular Risk', *Journal of Clinical Endocrinology and Metabolism*. [jcem.endojournals.org/](http://jcem.endojournals.org/)

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APA citation: A Mediterranean diet rich in olive oil may protect your bones (2012, August 24) retrieved 24 October 2021 from <https://medicalxpress.com/news/2012-08-mediterranean-diet-rich-olive-oil.html>

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