

# Mediterranean diet plus nuts may be helpful in managing metabolic syndrome

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A traditional Mediterranean diet with an additional daily serving of mixed nuts appears to be useful for managing some metabolic abnormalities in older adults at high risk for heart disease, according to a report in the December 8/22 issue of *Archives of Internal Medicine*.

The metabolic syndrome is a set of metabolic abnormalities that includes abdominal obesity and high cholesterol, high blood pressure and high blood glucose levels, all of which are risk factors for cardiovascular disease, according to background information in the article.

"Development of the metabolic syndrome depends on a complex interaction between still largely unknown genetic determinants and environmental factors, including dietary patterns," the authors write. A traditional Mediterranean diet—characterized by a high intake of cereals, vegetables, fruits and olive oil, a moderate intake of fish and alcohol and a low intake of dairy, meats and sweets—has been associated with a lower risk for metabolic abnormalities.

Jordi Salas-Salvadó, M.D., Ph.D., of the University of Rovira i Virgili, Spain, and colleagues assessed 1,224 participants in the PREDIMED (Prevencion con Dieta Mediterranea) study who were age 55 to 80 and at high risk for cardiovascular disease. Participants were randomly assigned to one of three groups: one group received advice on a low-fat diet while two received quarterly education about the Mediterranean diet. One of the Mediterranean diet groups was provided with 1 liter per week of virgin olive oil and the other received 30 grams per day of mixed nuts.

At the beginning of the study, 61.4 percent of the participants met criteria for the metabolic syndrome. After one year, 409 participants in the Mediterranean diet plus olive oil group, 411 in the Mediterranean diet plus nuts group and 404 in the control group of low-fat diet advice were available for evaluation. The prevalence of metabolic syndrome decreased by 13.7 percent among those in the nut group, 6.7 percent in the olive oil group and 2 percent in the control group.

Participants' weight did not change over the one-year period. However, the number of individuals with large waist circumference, high triglycerides or high blood pressure significantly decreased in the Mediterranean diet plus nuts group compared with the control group. This suggests that components of the diet, principally the nuts, may have beneficial effects on pathophysiological characteristics of metabolic syndrome, such as oxygen-related cell damage, resistance to the effects of insulin or chronic inflammation. The Mediterranean diet is high in unsaturated fatty acids; in addition, nuts also contain beneficial nutrients such as fiber, arginine, potassium, calcium and magnesium.

"Traditionally, dietary patterns recommended for health have been low-fat, high-carbohydrate diets, which generally are not palatable," the authors conclude. "The results of the present study show that a non-energy-restricted traditional Mediterranean diet enriched with nuts, which is high in fat, high in unsaturated fat and palatable, is a useful tool in managing the metabolic syndrome." A longer follow-up of the PREDIMED study participants may provide stronger evidence of the cardiovascular benefits that could result, they note.

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