MEDITERRANEAN DIET & HEALTH

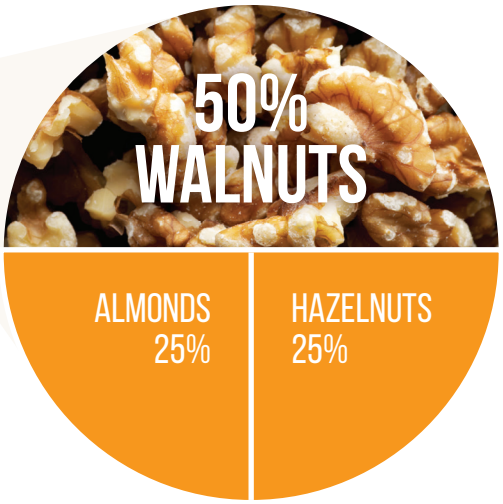
THERE ARE VARIOUS FORMS of the Mediterranean diet, which emphasizes more fruits and vegetables, nuts and seeds (including walnuts), grains, olive oil, moderate amounts of fish, poultry, eggs and wine, and limits the amounts of red meat, processed meat, dairy and sweets.[1] The U.S. Dietary Guidelines for Americans recommends a Mediterranean-style eating pattern as one example of a healthy diet plan.[2]

PREDIMED (PREvención con DIeta MEDiterránea = Prevention with Mediterranean Diet) was a landmark study aimed at assessing the efficacy of the Mediterranean diet in the primary prevention of cardiovascular disease.[3] Researchers examined whether a Mediterranean diet supplemented with extra-virgin olive oil or mixed tree nuts (50% walnuts, 25% almonds, and 25% hazelnuts), compared to a low-fat diet, could help reduce the risk of major cardiovascular events, including cardiovascular death, myocardial infarction (heart attack) and stroke. The study was a parallel group, multi-center, single blind, randomized clinical trial that was conducted by 16 research groups and seven communities and supported by the Spanish Health Ministry. Participants included 7,447 Spanish individuals (ages 55-80) at high risk of cardiovascular disease, but without symptoms at baseline, and were followed for a median of 4.8 years. Subjects were randomly assigned to one of three diet groups, content listed below, and were given dietetic support and educational sessions to ensure compliance. Energy intake was not specifically restricted in any intervention group.

A Mediterranean diet including tree nuts, primarily walnuts, was associated with a 30 percent lower risk of cardiovascular events (myocardial infarction, stroke or cardiovascular death) and specifically, a 46 percent lower risk of stroke, when compared to a low-fat diet.

PREDIMED DIET GROUPS

1. Mediterranean diet supplemented with **MIXED NUTS** (30 g per day; 15g walnuts (about 0.5 ounces), 7.5g almonds and 7.5g hazelnuts)
2. Mediterranean diet supplemented with **EXTRA VIRGIN OLIVE OIL** (at least 50g or 4 tablespoons per day)
3. **LOW-FAT DIET** (control group; American Heart Association guidelines)



The Mediterranean diet enriched with extra-virgin olive oil also reduced the risk of cardiovascular diseases by 30 percent. More than 300 additional publications have resulted from the PREDIMED research investigating outcomes such as cognitive function,[4] blood pressure,[5] total cholesterol,[5] and fasting glucose.[5]

The study had some limitations including the fact that participants lived in a Mediterranean country and were at high risk for cardiovascular disease. More research is needed to clarify the health benefits in other populations. Additionally, it is difficult to precisely define what part of the Mediterranean diet was associated with cardiovascular benefits.

A few research papers have published exploring the various health benefits of a green Mediterranean diet, including 28 g/day walnuts, 3–4 cups/day of green tea and 100 g frozen cubes of Wolffia globosa duckweed (Mankai) among a study population of 294 participants with abdominal obesity/dyslipidemia.[6,7,8] An 18-month randomized control trial found that those following a green Mediterranean diet showed beneficial changes in their gut microbiota and reduced risk of non-alcoholic fatty liver disease by half.[6] Another study found that after 6 months, those who followed a green Mediterranean diet lost more weight and had a larger decrease in LDL cholesterol as well as insulin resistance than those following a traditional Mediterranean diet or healthy diet.[7] Lastly, a study, explored fecal microbiota transplantation as a novel approach to understand the potential impact on lessening weight regain after being on a weight-loss diet, among individuals who were obese or had dyslipidemia.[8] Individuals who followed a green Mediterranean diet, and consumed capsules of their own fecal microbiome, had significantly limited weight regain between months 6-14, compared to those who followed the same green-Mediterranean diet but consumed the placebo capsules.

While researchers aren't sure why they see these results, what seems to be consistent is starting with a foundation of a healthy Mediterranean diet with fruits, vegetables, grains, olive oil, walnuts and seeds, and then adding a layer of tea and microgreens.

Larger and longer-term studies, as well as studies in more diverse populations, are needed to understand population-wide effects. Information on diet intake and adherence may have been limited because participants were free-living and data was self-reported.[6,7,8]

[1]Willett WC, Sacks F, Trichopoulou A, et al. Mediterranean diet pyramid: a cultural model for healthy eating. *Am J Clin Nutr* 1995;61(6 Suppl):1402S-1406S. [2]U.S. Department of Agriculture and U.S. Department of Health and Human Services. Dietary Guidelines for Americans, 2020-2025. 9th Edition. December 2020. Available at DietaryGuidelines.gov. [3]Estruch R, Ros E, Salas-Salvadó J, et al. Primary Prevention of Cardiovascular Disease with a Mediterranean Diet Supplemented with Extra-Virgin Olive Oil or Nuts. *N Engl J Med*. 2018;378(25):e34. [4]Valls-Pedret C, Sala-Vila A, Serra-Mir M, et al. Mediterranean diet and age-related cognitive decline: a randomized clinical trial. *JAMA Intern Med*. 2015;175(7)1094-103. [5]Doménech M, Roman P, Lapetra J, et al. Mediterranean diet reduces 24-hour ambulatory blood pressure, blood glucose, and lipids: one-year randomized, clinical trial. *Hypertension*. 2014 Jul;64(1):69-76. [6]Yaskolka Meir A, Rinott E, Tsaban G, et al. Effect of green-Mediterranean diet on intrahepatic fat: the DIRECT PLUS randomised controlled trial. *Gut*. Epub ahead of print: [January 2018, 2021]. [7]Tsaban G, Yaskolka Meir A, Rinott E, et al. The effect of green Mediterranean diet on cardiometabolic risk; a randomised controlled trial. *Heart* Published Online First: 23 November 2020.[8]Rinott E, Youngster I, Meir AY, Tsaban G, Zelicha H, Kaplan A, Knights D, Tuohy K, Fava F, Scholz MU, Ziv O, Reuven E, Tirosh A, Rudich A, Blüher M, Stumvoll M, Ceglarek U, Clement K, Koren O, Wang DD, Hu FB, Stampfer MJ, Shai I, Effects of Diet-Modulated Autologous Fecal Microbiota Transplantation on Weight Regain, *Gastroenterology* (2020).

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