

# Mediterranean Diet

Subjects: Agriculture, Dairy & Animal Science | Psychology, Social

Contributor: Angelos Sikalidis, Aleksandra Kristo

The Mediterranean diet is a food pattern incorporated into a set of lifestyle practices typical of Greece and Southern Italy in the early 1960s, where adult life expectancy was notably high, while rates of diet-related chronic diseases were low. The Mediterranean diet was described initially by the work of LG Allbaugh, commissioned by the Rockefeller foundation and the Greek government post-WW2 on the Greek island of Crete in 1948. The Mediterranean diet was accepted as Intangible Cultural Heritage of Humanity by UNESCO in 2013. The primary advantages of the Mediterranean diet include health benefits pertinent to cardiovascular, metabolic syndrome, and cognition.

Keywords: Mediterranean Diet ; Lifestyle ; Longevity ; Cardiovascular Disease ; Metabolic Syndrome

---

The Mediterranean diet gained international recognition due to Ancel Keys' work and was established as the original prototype for current dietary guidelines in the United States and other countries <sup>[1][2]</sup>. Among the earliest definitions of the Mediterranean diet is the one provided by Willet et al., whereby the Mediterranean diet (MD) reflects food patterns typical of certain regions of Greece and Italy in the early 1960s, where adult life expectancy was notably high, while rates of diet-related chronic diseases were low <sup>[1][3]</sup>.

In the US, the satisfying flavors, and hence a high acceptability of the Mediterranean diet, have been documented to provide opportunities for dietary improvement, such as increasing consumption of fresh vegetables, fruit, grains, and olive oil since the early 20th century <sup>[3][4]</sup>. Significant populations that immigrated to the United States from Greece, Italy, and Spain contributed to making the Mediterranean diet style more known in the US.

Currently, the Healthy Mediterranean-Style Dietary Pattern is included in the 2020–2025 version of the Dietary Guidelines for Americans in agreement with previous versions, as it is considered a variation of the Healthy US-Style Dietary Pattern, the latter based on the types and proportions of foods typically consumed by Americans <sup>[5]</sup>, although in nutrient-dense forms and appropriate amounts <sup>[5]</sup>. In the manuscript herein, we provide an account on the historical timeline and main points of the Mediterranean diet, key studies that delineated its health benefits, and a contrast with main popular and widespread alternative dietary schemes.

While further research in delineating the mechanisms of the Mediterranean diet in protecting against chronic disease is required, the ways in which a palatable and healthful dietary pattern such as the Mediterranean diet can be promoted need to be investigated employing culinary and marketing strategies beyond medical and nutrition authorities <sup>[1][3]</sup>.

The Mediterranean Sea (**Figure 1**) is linked to the Atlantic Ocean via the straits of Gibraltar (historically referred to as Pillars of Hercules) <sup>[6][7][8]</sup>. While the Mediterranean is almost completely enclosed by land—on the north by Europe (Greece, Adriatic countries, Italy, France, Spain), on the south by North Africa, and on the east by Anatolia and the Levant—the sea remains strictly a part of the Atlantic Ocean, though usually identified as a distinct body of water. From a geographical perspective, the Mediterranean is a broad region inhabited since the dawn of civilization on Earth, around a closed sea in the “middle of the earth” in an area with characteristic climate and soil conditions <sup>[6]</sup>.



**Figure 1.** The Mediterranean Sea and region.

Concerning the climate of the area, this is characterized by normally hot, dry summers and mild, rainy winters. As far as the soil is concerned, particularly during the wet winters, there is leaching of clays and carbonates with the release of iron, which conveys a red color to the soil. Leaching is minimal throughout the dry summers; thus, there is typically an accumulation of a carbonate horizon in the soil. The climate and soil conditions of the Mediterranean are unusual in the world, since there are only limited areas in the US state of California, Australia, and Chile with what would be termed “the Mediterranean or Mediterranean-like” climate. Typical Mediterranean crops include olives and grapes (being the most characteristic), as well as oranges, tangerines, and cork, and a unique variety of herbs and spices. Ancient Greece was the cradle of the Mediterranean food tradition <sup>[9]</sup>, while the basis of such tradition was characterized by the Mediterranean “eternal trinity” of wheat–olive oil–wine, enriched by a culture of sharing and commensality <sup>[9]</sup>.

In Homeric times, salting for meats from cattle, sheep, and goats was employed as a method of preservation for these foods, which were important staples among the diets of aristocratic heroes; the specific portion/part of the meat served to an individual corresponded to their level of social status <sup>[6][8]</sup>. Similarly, to the Egyptians, the Greeks preferred the allium family, including onion, garlic, and leek. Other vegetables consumed included turnip, radish, lettuce, artichoke, cabbage, celery, cucumber, parsley, and thyme. Fruit involved dates (imported), figs, and grapes. The wealthy could procure walnuts and almonds from the East, while mushrooms and honey were accessible and fish was eaten fresh, dried, or pickled <sup>[6][8][10]</sup>. Tomatoes and potatoes were introduced much later in the region but were very quickly and massively adopted.

In the Mediterranean, the diet was typically built around plant-based foods, including vegetables, fruits, whole grains, nuts, and seeds. These provide antioxidants, significant amounts of fiber, as well as vitamins and minerals. Healthy lipids are another significant dietary benefit of MD, particularly those derived from olives, nuts, and fatty fish (such as salmon and sardines). These sources are all high in heart-healthy monounsaturated fat and are often used to replace saturated and trans fats found in fatty meats and cheese. There is also a low intake of saturated fats, which are often present in red meat, while moderate amounts of fish and poultry and lower levels of red meat are consumed. Dairy products are also moderately consumed. Moreover, spices and herbs are commonly used to flavor foods rather than salt, while moderate consumption of red wine with meals and desserts in the form of fresh fruit is habitually received <sup>[9][10][11]</sup>. From a dietary scheme perspective, when we refer to the term “Mediterranean diet” in the literature, further to the early definition Willet et al. provided, we primarily refer to the dietary pattern of South Italy (historically, Magna Graecia) and Greece (mainly Crete) at the time period of the 1950s–1960s <sup>[1][11][12][13]</sup>.

Herbs and spices demonstrate key importance in the Mediterranean diet concept. Basil originates from Southern France and Italy. Oregano grows wild throughout the Mediterranean and is a cooking staple. Thyme originates in the Mediterranean and has a herbal, minty flavor. Cilantro has been found in both Southern Europe and the Middle/Far East. Chives belong to the onion family; however, they are milder than onions. Fennel originated in the Mediterranean. Onions are highly popular to Mediterranean cuisine since they enhance other flavors. Mint is used in Eastern Mediterranean cooking. According to Greek mythology, the word mint is derived from Minthe, a Greek nymph who was loved by Pluto and was changed into the peppermint plant. Other popular herbs and spices include cinnamon, cloves, bay leaves, and coriander. All the spices and herbs used are well-established, rich sources of phytochemicals and bioactive compounds that have been shown to produce significant health benefits <sup>[6][10][13]</sup>.

Olive and olive oil are central in the Mediterranean culture and diet. Greece was the first to start cultivation of the olive tree regularly in 3500 BC (island of Crete). The olive tree was a central symbol in Ancient Greece, and olive oil was not only used for its valuable nutritional quality but also for medicinal and religious purposes. An olive tree branch wreath (kotinos—Greek: κότινος) was awarded to the Olympic game winner along with olive oil—5 tons for the first place. Olive oil is particularly rich in vitamin E, as well as in polyphenols, squalene, and iron <sup>[9][10]</sup>. Many herbs and spices can be added to olive oil to prevent oxidation and improve its flavor <sup>[6][8]</sup>. Descriptions from Homer and many depictions on pottery and frescos show clearly that people in the Mediterranean from ancient Greek times were knowledgeable over a variety of food preservation practices, including storage, salting, and/or seasoning for fish and seafood, olives and olive oil, wine, and various meats (such as pork, goat, sheep, and beef) <sup>[6]</sup>.

Interestingly, the term diet is produced by the Greek “διαίτάν”, meaning way of life <sup>[14]</sup>. Thus, the Mediterranean diet can be approached as a way of life incorporating but not limited to nutrition, developed and adopted by people in a geographical region populated since the early days of civilization on Earth, around a closed sea surrounded by land of characteristic climate and soil conditions. The Mediterranean diet portrays a “way of eating and cooking” which is unique because it is not merely healthy. The Mediterranean diet is proposed as a rather healthy way of eating. In this context, the Mediterranean diet was inscribed in 2013 on the Representative List of the Intangible Cultural Heritage of Humanity Countries: Greece, Italy, Spain, Morocco, Cyprus, Croatia, Portugal. The Mediterranean diet involves a set of skills, knowledge, rituals, symbols, and traditions concerning crops, harvesting, fishing, animal husbandry, conservation, processing, cooking, and particularly the sharing and consumption of food. Eating together is the foundation of the cultural identity and continuity of communities throughout the Mediterranean basin. It is a moment of social exchange and communication, an affirmation and renewal of family, group, or community identity <sup>[15]</sup>.

---

## References

1. Willett, W.C.; Sacks, F.; Trichopoulou, A.; Drescher, G.; Ferro-Luzzi, A.; Helsing, E.; Trichopoulos, D. Mediterranean diet pyramid: A cultural model for healthy eating. *Am. J. Clin. Nutr.* 1995, 61, 1402S–1406S.
2. Nestle, M. Mediterranean diets: Historical and research overview. *Am. J. Clin. Nutr.* 1995, 61, 1313S–1320S.
3. Haber, B. The Mediterranean diet: A view from history. *Am. J. Clin. Nutr.* 1997, 66, 1053S–1057S.
4. Helsing, E. Traditional diets and disease patterns of the Mediterranean, circa 1960. *Am. J. Clin. Nutr.* 1995, 61, 1329S–1337S.
5. U.S. Department of Agriculture; U.S. Department of Health and Human Services. Dietary Guidelines for Americans, 2020–2025, 9th ed. Available online: <https://dietaryguidelines.gov> (accessed on 13 December 2020).
6. The Odyssey; Translated by Robert Fitzgerald; Everyman's Library: New York, NY, USA, 1992.
7. Hesiod. Theogony, Works and Days; Testimonia Loeb Classical Library: Cambridge, MA, USA, 2006; p. 119.
8. Skiadas, P.K.; Lascaratos, J.G. Dietetics in ancient Greek philosophy: Plato's concepts of healthy diet. *Eur. J. Clin. Nutr.* 2001, 55, 532–537.
9. Minelli, P.; Montinari, M.R. The Mediterranean Diet and Cardioprotection: Historical Overview and Current Research. *J. Multidiscip. Health* 2019, 12, 805–815.
10. Conti, A.A.; Lippi, D.; Gensini, G.F. Obesity and nutritional behavior within a historical perspective. *Minerva Gastroenterol. Dietol.* 2004, 50, 171–177.
11. Trichopoulou, A. Mediterranean diet: The past and the present. *Nutr. Metab. Cardiovasc. Dis.* 2001, 11, 1–4.
12. Aboul-Enein, B.H.; Puddy, W.C.; Bernstein, J. Ancel Benjamin Keys (1904–2004): His early works and the legacy of the modern Mediterranean diet. *J. Med Biogr.* 2020, 28, 139–147.
13. Simopoulos, A.P. The Mediterranean Diets: What Is So Special about the Diet of Greece? The Scientific Evidence. *J. Nutr.* 2001, 131, 3065S–3073S.
14. The American Heritage Dictionary of the English Language, 4th ed.; Houghton Mifflin: Boston, MA, USA, 2000.
15. UNESCO. Intangible Cultural Heritage. Available online: <https://ich.unesco.org/en/RL/mediterranean-diet-00884> (accessed on 12 February 2021).

