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Mediterranean
Diet International Course

27–29 November, 2019 University of Algarve

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The Mediterranean food and gastronomy foundations: a journey through nutritional aspects, key principles and healthy lifestyle

Maria Palma Mateus

Project co-financed by the European Regional Development Fund.

“Traditional eating pattern”

Health promoter

Common food matrix

Based on the production and consumption of **olive oil**, **cereals** and **wine**

Mediterranean Triad

González Turmo & Mataix Verdú, 2008; Nestle, 1995; Willett, et al., 1995

Project co-financed by the European Regional Development Fund.

Ancel Keys

Studied the eating habits of several countries in the 1950s and 60s of the 20st century.

Developed

a sequence of studies

“Seven Countries Study”

Mortality rates due to cardiovascular disease

Northern Europe

USA

Southern Europe

Japan

Fat consumption
Ratio between monounsaturated and saturated fats

Oglesby Paul. International Cooperative Study on the Epidemiology of Coronary Heart Disease. Originally published 1 Jun 1970: https://doi.org/10.1161/01.CIR.41.6.895. Circulation. 1970;41:895–897

Project co-financed by the European Regional Development Fund.

Meals meeting needs throughout the workday

Wide variety of food in small portions

Family-centered meals

Simple cooking

Respect for the envirnoment

Distinction between ordinary and festive days

Fresh, local and seasonal food

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Mediterranean Diet Pyramid: a lifestyle for today

Guidelines for Adult population

Serving size based on frugality and local habits

2010 edition

s = Serving

Fundación Dieta Mediterránea

ICAF
International Commission on the Anthropology of Food and Nutrition

FORUM ON MEDITERRANEAN FOOD CULTURES

Predimed

Ciiscam

H.H.F. HELLENIC HEALTH FOUNDATION

IUNS

CIHEAM

fens

RODA DA ALIMENTAÇÃO MEDITERRÂNICA

CULTURA, TRADIÇÃO E EQUILÍBRIO!

DIETA MEDITERRÂNICA

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Mediterranean Food Pattern

- Abundant consumption of vegetables, fruit, unrefined cereals, dried and fresh pulses and nuts;
- Consumption of fresh, local and seasonal food;
- Consumption of olive oil as the main source of fat;
- Frequent consumption of fish;

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Mediterranean Food Pattern

- Low to moderate dairy consumption, preferably cheese and yogurt;
- Low consumption of red meat;
- Low to moderate wine consumption, preferably with meals.

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Mediterranean Food Pattern

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Received: 18 September 2017; Accepted: 1 November 2017; Published: 8 November 2017

Article

Transferability of the Mediterranean Diet to Non-Mediterranean Countries. What Is and What Is Not the Mediterranean Diet

Miguel Ángel Martínez-González [1,2,3,4], Maria Soledad Hershey and Antonia Trichopoulou [6,7]

Abstract: Substantial evidence has verified the Mediterranean die long-term sustainability, and effectiveness for preventing hard c disease (CVD), as well as increasing longevity. This article in clu prospective studies supporting a strong inverse association be we and the incidence of hard clinical events of CVD. The MedDiet h topic of interest when focusing on overall food patterns rather tha Mediterranean countries, but also globally. However, several my with the traditional Mediterranean diet should be clearly addresse that label as "Mediterranean" an eating pattern that is not in line diet. The transferability of the traditional MedDiet to the non-Med but it requires a multitude of changes in dietary habits. New a dietary behavior consistent with the MedDiet will offer healthful, at all levels of public health. The following article presents p necessary for accomplishing these changes.

What Is Not the Mediterranean Diet?

lard or butter, they are uncharacteristic of the traditional MedDiet. The proper introduction of the traditional MedDiet in non-Mediterranean countries requires the use of olive oil as the main culinary fat. Some systematic reviews on the MedDiet misleadingly defined the MedDiet as any diet that meets at least two of nine traditional MedDiet characteristics (high consumption of olive oil, legumes, cereals, fruits and vegetables, moderate to high consumption of fish, low consumption of meat and meat products, and moderate consumption of dairy products, mostly as cheese and yogurt, and wine). This definition based on at least two of these characteristics completely lacks specificity, and therefore it may prove useless. Other misleading definitions of the MedDiet are based on macronutrient intake and may indirectly suggest that the MedDiet is defined solely by an unrestricted fat content. This is incorrect, however, a "low fat" MedDiet is not the traditional MedDiet either. The usual amount of fat in the MedDiet is 30–45%, but the important factor is not the amount, but the type of fat: olive oil, nuts, and fatty fish should be the main sources of fat, especially extra-virgin olive oil, which may represent 15% or more of the total calorie intake.

In summary, adoption of the MedDiet inevitably requires a low consumption (both in quantity and frequency), or even null consumption of red meat, processed meats, sweet desserts, and processed foods rich in sugars and fats.

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Balanced distribution of the daily energy

- 10 a 15% Protein
- 55 a 60% Carbohydrate
- 25 a 30% Fat

Simple cuisine

Rich and elaborate cooking is reserved for feast days.

Maintains energetic balance

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Energetic balance

- Complex carbohydrates
- Vegetable protein
- Fibers

Decreased risk of developing **Obesity** and non communicable diseases (**type 2 diabetes mellitus** and **cardiovascular diseases)**

Martínez-González, et al., 2008; Panagiotakos, Polychronopoulos, 2007; Willett, 2006

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Health Benefits

HIGH CONSUMPTION

- **Monounsaturated fatty acids** (oleic acid)
- **Polyunsaturated fatty acids** (omega 3)

- **Vitamins**
- **Minerals**
- **Anti-inflammatory and antioxidant substances** (flavonoids, catechins, among others)

More longevity and better quality of life

Bone and mental health protection
Prevention of some cancers

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Health Benefits

LOW CONSUMPTION

- Saturated and trans fatty acids
- Sugars and sodium

Prevention of cardiovascular and cerebrovascular diseases

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More longevity and better quality of life

British Journal of Nutrition (2000), **84**, Suppl. 2, S205–S209

Mediterranean diet and longevity

A. Trichopoulou* and E. Vasilopoulou

University of Athens Medical School, Department of Hygiene and Epidemiology, Mikras Asias 75, 115 27 Athens, Greece

Mortality statistics from the WHO database covering the period 1960 to 1990 have provided intriguing evidence that something unusual has been affecting in a beneficial way the health of the Mediterranean population. In recent papers, which evaluated the evidence accumulated over the last three decades, it was concluded that the traditional Mediterranean diet meets several important criteria for a healthy diet. Direct evidence in support of the beneficial properties of the Mediterranean diet has also become available. These data were derived from three studies, which have used a diet score, devised *a priori* on the basis of eight desirable key features of the traditional common diet in the Mediterranean region. The conclusion of these studies is that a diet that adheres to the principles of the traditional Mediterranean one is associated with longer survival. The Greek version of the Mediterranean diet is dominated by the consumption of olive oil and by high consumption of vegetables and fruits. Antioxidants represent a common element in these foods and an antioxidant action provides a plausible explanation for the apparent benefits. Wild edible greens frequently eaten in rural Greece in the form of salads and pies contain very high quantities of flavonoids — considerably higher than those found in red wine or black tea. While there is no direct evidence that these antioxidants are central to the benefits of the Mediterranean Diet, indirect evidence from epidemiological data and the increasing understanding of their mechanisms of action suggest that antioxidants may play a major role.

Mediterranean diet: Longevity: Antioxidants

Project co-financed by the European Regional Development Fund.

More longevity and better quality of life

REVIEW: Mediterranean diet and life expectancy; beyond olive oil, fruits, and vegetables.

Curr Opin Clin Nutr Metab Care. 2016 Aug 23.

Martinez-Gonzalez MA1, Martin-Calvo N.

RECENT FINDINGS:
Large observational prospective epidemiological studies with adequate control of confounding and two large randomized trials support the benefits of the Mediterranean dietary pattern to increase life expectancy, reduce the risk of major chronic disease, and improve quality of life and well-being. Recently, 19 new studies from large prospective studies showed - with nearly **perfect consistency - strong benefits of the MedDiet to reduce the risk of myocardial infarction, stroke, total mortality, heart failure, and disability.** Interestingly, two large and well conducted cohorts reported significant cardiovascular benefits after using repeated measurements of diet during a long follow-up period. In addition, Prevención con Dieta Mediterránea, **the largest randomized trial with MedDiet, recently reported benefits of this dietary pattern to prevent cognitive decline and breast cancer.**

In the era of evidence-based medicine, the **MedDiet represents the gold standard in preventive medicine, probably because of the harmonic combination of many elements with antioxidant and anti-inflammatory properties, which overwhelm any single nutrient or food item. The whole seems more important than the sum of its parts.**

Project co-financed by the European Regional Development Fund.

Reduced risk of type 2 diabetes mellitus

REVIEW: Adherence to the Mediterranean diet is inversely associated with metabolic syndrome occurrence: a meta-analysis of observational studies.

Int J Food Sci Nutr. 2016 Aug 25:1-11.

Godos J1, Zappalà G2, Bernardini S3, Giambini I4, Bes-Rastrollo M5,6, Martinez-Gonzalez M5,6.

OBJECTIVE:
Adherence to a Mediterranean diet is associated with significant improvements in health status. However, to date no systematic review and meta-analysis has summarized the effects of Mediterranean diet adherence on the risk of type 2 diabetes mellitus.
RESULTS:
One randomized controlled trial and eight prospective cohort studies (122 810 subjects) published between 2007 and 2014 were included for meta-analysis. For highest v. lowest adherence to the Mediterranean diet score, the pooled risk ratio was 0.81 (95 % CI 0.73, 0.90, P<0.0001, I 2=55 %). Sensitivity analysis including only long-term studies confirmed the results of the primary analysis (pooled risk ratio=0.75; 95 % CI 0.68, 0.83, P<0.00001, I 2=0 %). The Egger regression test provided no evidence of substantial publication bias (P=0.254).
CONCLUSIONS:
Greater adherence to a Mediterranean diet is associated with a significant reduction in the risk of diabetes (19 %; moderate quality evidence). These results seem to be clinically relevant for public health, in particular for encouraging a Mediterranean-like dietary pattern for primary prevention of type 2 diabetes mellitus.

Reduced risk of type 2 diabetes mellitus

Review Article

Dietary Polyphenols, Mediterranean Diet, Prediabetes, and Type 2 Diabetes: A Narrative Review of the Evidence

Marta Guasch-Ferré,[1] Jordi Merino,[2] Qi Sun,[1,3] Montse Fitó,[4,5] and Jordi Salas-Salvadó[5,6]

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[6]*Human Nutrition Unit, University Hospital of Sant Joan de Reus, Department of Biochemistry and Biotechnology, Faculty of Medicine and Health Sciences, IISPV, Rovira I Virgili University, Reus, Spain*

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Hindawi
Oxidative Medicine and Cellular Longevity
Volume 2017, Article ID 6723931, 16 pages
https://doi.org/10.1155/2017/6723931

risk factors. Several prospective studies have shown inverse associations between polyphenol intake and T2D. The Mediterranean diet and its key components, olive oil, nuts, and red wine, have been inversely associated with insulin resistance and T2D. To some extent, these associations may be attributed to the high amount of polyphenols and bioactive compounds in typical foods conforming this traditional dietary pattern. Few studies have suggested that genetic predisposition can modulate the relationship between polyphenols and T2D risk. In conclusion, the intake of polyphenols may be beneficial for both insulin resistance and T2D risk.

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Project co-financed by the European Regional Development Fund.

Reduced risk of cardiovascular disease

Adherence to Mediterranean diet, high-sensitive C-reactive protein, and severity of coronary artery disease: Contemporary data from the INTERCATH cohort.

Atherosclerosis. 2018 Aug;275:256-261. doi: 10.1016/j.atherosclerosis.2018.06.877. Epub 2018 Jun 22

Waldeyer C1, Brunner FJ2, Braetz J2, Ruebsamen N2, Zyriax BC3, Blaum C2, Kroeger F2, Kohsiack R2, Schrage B2, Sinning C2, Becher PM2, Karakas M4, Zeller T4, Westermann D4, Sydow K5, Blankenberg S4, Seiffert M4, Schnabel RB4.

BACKGROUND AND AIMS:

Guidelines recommend a healthy diet as a cornerstone of cardiovascular disease (CVD) prevention. Although the Mediterranean diet (MD) is the best studied dietary pattern for CV outcomes, data on association between MD and severity of CAD are limited. Therefore, we analysed dietary data in association with the SYNTAX score in **coronary artery disease** (CAD) patients from the INTERCATH study.

CONCLUSIONS:

In this contemporary data set, **we found an independent association of adherence to MD with a less complex CAD.** Hs-CRP correlated significantly with adherence to MD and may be a marker of the vasoprotective effects of MD**. These results strengthen the evidence for the protective effect of an MD pattern in CVD prevention.**

Better bone health

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Article

Adherence to a Mediterranean Diet and Bone Mineral Density in Spanish Premenopausal Women

Jesús Pérez-Rey †, Raúl Roncero-Martín †, Sergio Rico-Martín *, Purificación Rey-Sánchez, Juan D. Pedrera-Zamorano, María Pedrera-Canal, Fidel López-Espuela and Jesús M. Lavado-García

Received: 18 January 2019; Accepted: 28 February 2019; Published: 5 March 2019

Abstract: The Mediterranean diet (MD) has been associated with an improvement in health and an increase in longevity. Certain components of a MD can play a role in the prevention of osteoporosis and/or hip fracture. We investigated the association between the degree of adherence to a MD and bone mineral density (BMD) measured in several bone areas in a population of Spanish premenopausal women. We analyzed 442 premenopausal women aged 42.73 ± 6.67 years. Bone measurements were obtained using quantitative bone ultrasound (QUS) for the phalanx, dual energy X-ray absorptiometry (DXA) for the lumbar spine, Ward's triangle, trochanter, and hip, and peripheral quantitative computed tomography (pQCT) for the non-dominant distal forearm. MD adherence was evaluated with MedDietScore. Amplitude-dependent speed of sound (Ad-SOS), BMD, and volumetric bone mineral density (vBMD) (total, trabecular, and cortical bone density) were positively associated with higher adherence to the MD ($p < 0.05$). Adherence to the MD was significantly associated with QUS, BMD, and vBMD in multiple regression analysis; QUS: Ad-SOS (m/s) $\beta = 0.099$ ($p = 0.030$); BMD (g/cm^2): femur neck $\beta = 0.114$ ($p = 0.010$) and Ward's triangle $\beta = 0.125$ ($p = 0.006$); vBMD (mg/cm^3): total density $\beta = 0.119$ ($p = 0.036$), trabecular density $\beta = 0.120$ ($p = 0.035$), and cortical density $\beta = 0.122$ ($p = 0.032$). We conclude that the adherence to the MD was positively associated with better bone mass in Spanish premenopausal women.

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Lower incidence of some types of cancer

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Editorial

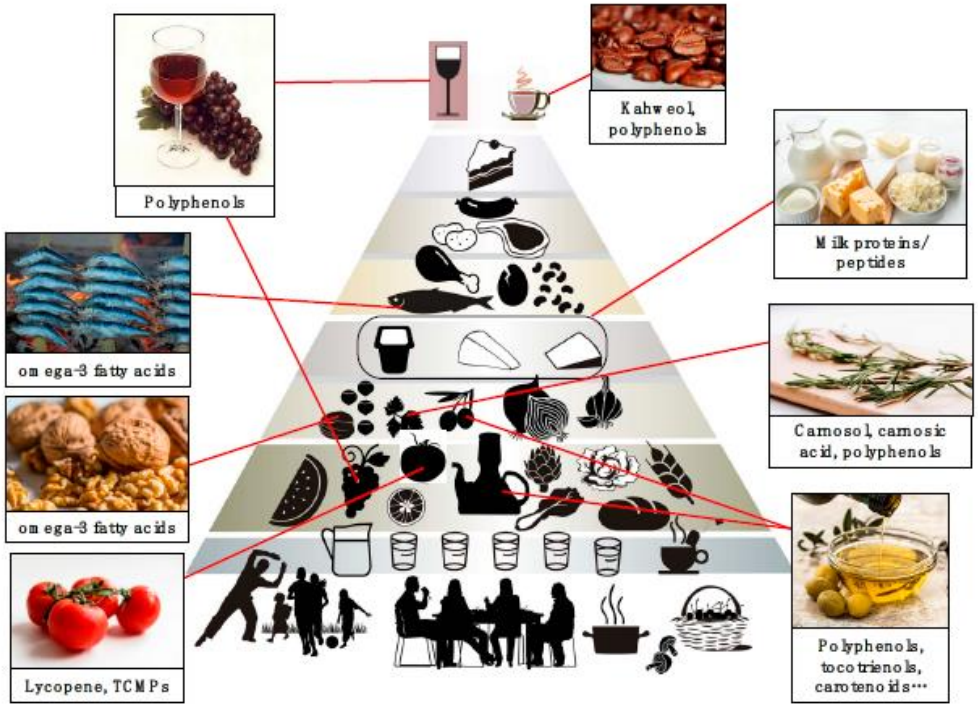
The Mediterranean Diet and Cancer: What Do Human and Molecular Studies Have to Say about It?

Álvaro Hernáez [1,2,*] and Ramón Estruch [2,3,*]

Received: 31 August 2019; Accepted: 5 September 2019; Published: 9 September 2019

In summary, MD seems clearly linked to prevent the development of cancer, as reported in observational studies and their meta-analyses. Its individual components (fruits, vegetables, whole grains, legumes, nuts, fish, and a reduced intake of red/processed meats) have also been linked to cancer prevention benefits in meta-analyses of prospective human studies, with several molecular mechanisms supporting this hypothesis. However, further efforts in the context of dietary intervention trials are needed to confirm this protective effect with the highest level of scientific evidence.

Lower incidence of some types of cancer



Beatriz Martínez-Poveda et al. The Mediterranean Diet, a Rich Source of Angiopreventive Compounds in Cancer. Nutrients 2019, 11, 2036; doi:10.3390/nu11092036

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Conclusion

Eat Mediterranean

Stay healthy

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