

MEDITERRANEAN DIET

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Summer School in Public Health Nutrition and Ageing
The Mediterranean Agronomic Institute of Chania, Crete, 8-17 June 2003

The Rockefeller Report I

"olives, cereal grains, pulses, fruit, wild greens and herbs, together with limited quantities of goat meat and milk, game, and fish consist the basic Cretan foods... no meal was complete without bread . . . Olives and olive oil contributed heavily to the energy intake ... food seemed literally to be 'swimming' in oil".

Allbaugh LG. Crete: a case study of an underdeveloped area. Princeton NJ: Princeton University Press, 1953

The Rockefeller Report II

"the food consumption levels were surprisingly good. On the whole, their food pattern and food habits were extremely well adapted to their natural and economic resources as well as their needs".

"only one out of six of the interviewed families judged the typical diet to be satisfactory "

"meat (72%), rice, fish, pasta, butter, and cheese: foods most desired to improve their diets"

- ❖ What is the Mediterranean Diet?
- ❖ What are its health effects?
- ❖ In what way is the diet changing?

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The Rockefeller Study

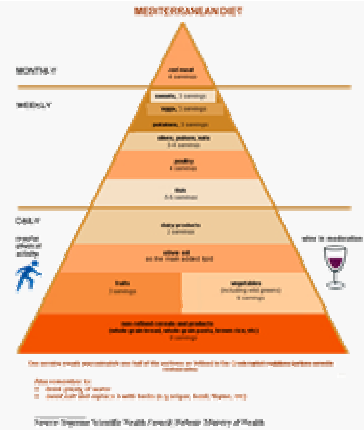
- ❖ **1948 (The Rockefeller Foundation, LG. Allbaugh)**
- ❖ **Island of Crete**
- ❖ **Members of 128 households (collection of demographic, social, economic, health and dietary data)**

The Mediterranean Diet

- Based on plant foods
- Olive oil as the main added lipid
- Low in SFA (7-8% of energy)
- Total lipid intake = 25-40% of energy
- Regular physical activity

Dietary Characteristics in U.S., Greece and Japan, in 1960's

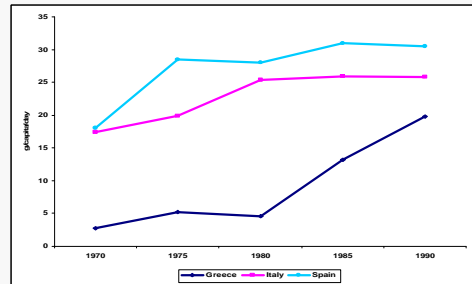
Dietary Characteristics	U.S.	Greece	Japan
Fat (% Energy)	39	37	11
Saturated Fat (% Energy)	18	8	3
Vegetables (g/day)	171	191	198
Fruits (g/day)	233	463	34
Legumes (g/day)	1	30	91
Breads/Cereals (g/day)	123	453	481
Potatoes (g/day)	124	170	65
Meat (g/day)	273	35	8
Fish (g/day)	3	39	150
Eggs (g/day)	40	15	29
Alcohol (g/day)	6	23	22



Life expectancy / Disease Rates in U.S., Greece and Japan, in 1960's

		U.S.	Greece	Japan
Life expectancy at age 45 in years	(M)	27	31	27
	(F)	33	34	32
Coronary Heart Disease	(M)	189	33	34
	(F)	54	14	21
Cerebrovascular Diseases	(M)	30	26	102
	(F)	24	23	57
Breast Cancer	(F)	22	8	4
Stomach Cancer	(M)	6	10	48
	(F)	3	6	26
Colon, Rectal Cancer	(M)	11	3	5
	(F)	10	3	5
Total Cancer	(M)	102	83	98
	(F)	87	61	77

Trends in polyunsaturated oil availability in 3 Mediterranean countries, from 1970 to 1990



Based on data from WHO, 1993

Mediterranean Diet

- high olive oil consumption
- high consumption of legumes
- high consumption of cereals
- high consumption of fruits
- high consumption of vegetables
- moderate wine consumption
- moderate consumption of dairy products
- moderate to high consumption of fish
- low consumption of meat and meat products

Dietary patterns have the ability to integrate complex or subtle interactive effects or many dietary exposures

and

bypass problems generated by multiple testing and the high correlations that may exist among these exposures.

- Many studies have evaluated the association between single foods, food groups, or nutrients and chronic disease
- Last 10 years: focus on the identification of a dietary pattern that maximizes longevity

Adherence to the Mediterranean Diet

Study characteristics

- 1988 – 1989
- 182 males and females
- >70 yrs of age (median age 75 yrs)
- Residents of 3 rural Greek villages
- Dietary data collection through a validated semi-quantitative food frequency questionnaire

Trichopoulou et al BMJ 1995;311:1457-60

DIETARY PATTERNS MAY BE DEVELOPED

A priori on the basis of previous knowledge

A posteriori on the basis of existing data

Principal component and factor analysis popular statistical techniques for the a posteriori identification of dietary patterns

Diet and Overall Survival of Elderly People

182 elderly residents of three Greek villages

An one unit increase in an eight-unit diet score, devised *a priori* on the basis of eight component characteristics of the traditional common diet in the Mediterranean region, was associated with a significant 17% reduction in overall mortality

Trichopoulos et al. BMJ 1995

Aim

To evaluate the association between

either:

degree of adherence to the traditional, Greek-Mediterranean diet,

or

individual food groups

and

total mortality during follow-up

Diet and Mortality in a Cohort of Elderly People in a North European Community

Diet and nutritional status was studied among 202 men and women born 1914 - 1918 and living in a Danish Municipality (Roskilde). They were followed for 6 years.

A score, with seven dietary characteristics of the Mediterranean diet, was associated with a significant reduction in overall mortality.

Osler M and Schroll M.
International Journal of Epidemiology, 1997

A cohort study in Melbourne Australia

141 Anglo-Celts and 189 Greek-Australians of both sexes
aged 70 years or more

A one unit increase in the eight-unit Mediterranean diet score, was
associated with a significant 17% reduction in overall mortality

Kouris-Blazos *et al.* Brit J Nutr 1999

The Mediterranean Diet at present

National surveys

- ↑ Meat and milk products
- ↓ Olive oil and fruit

International data

- Food Balance Sheets
- DAFNE databank
- International food consumption surveys

Mediterranean diet and age with respect to overall survival in institutionalized, nonsmoking elderly people

161 nonsmoking Spaniards of both sexes
aged 65 years or more

They were followed for 9 years.

A one unit increase in the eight-unit Mediterranean diet score was
associated with a significant
31% reduction in mortality among subjects aged <80 y.

Lasheras *et al.* AJCN 2000

MEAT and MEAT PRODUCTS

Epidemiological studies

Blood lipids levels

Heme iron

Homocysteine levels

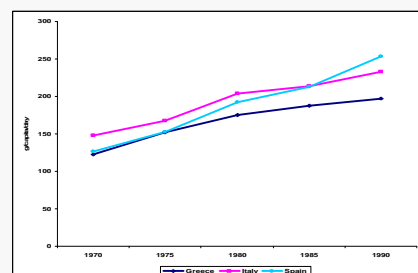
Shift to the traditional Mediterranean nutrition of the Western countries could mean

Prevention of several forms of cancer

- 25% colorectal
- 15% breast
- 10% prostate

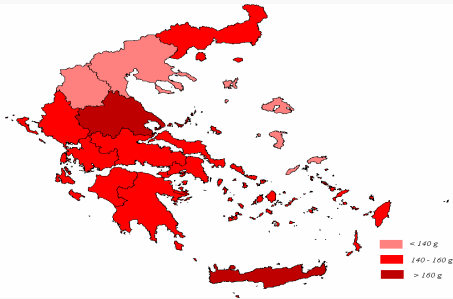
Trichopoulos *et al.* Cancer Epidemiol Biomarkers Prev 2000

Trends in meat availability in 3 Mediterranean countries, from 1970 to 1990



Source: Based on data from WHO, 1993

Meat availability in Greece in the 1990s



Source: The DAFNE databank (www.nut.uoa.gr)

FISH

Epidemiology

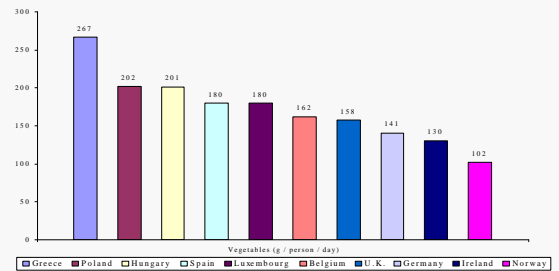
Metabolic studies

Fruits and Vegetables

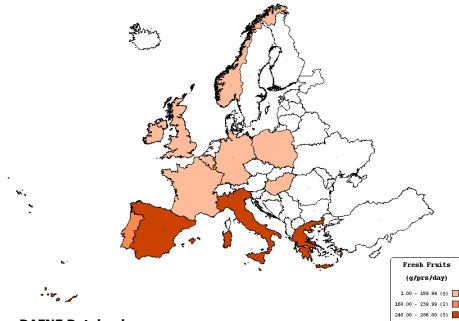
The presence of
dietary fiber
Vitamins C, E, B₆, B₁₂,
Folic acid, β-carotene
 etc

Mean availability of vegetables in 10 European countries, circa 1990 (g/person/day)

(Source: DAFNE databank)

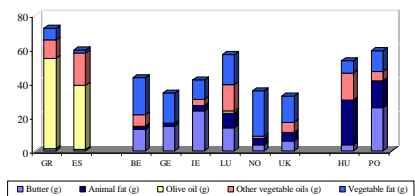


Availability of fresh fruits, in 13 DAFNE countries, around 1990 (g/person/day)



Source : DAFNE Databank

Average availability of total added lipids by type, in the DAFNE countries



Source: DAFNE databank

The AMERICAN JOURNAL of MEDICINE

Proceedings of a Symposium

Dietary Fat, the Mediterranean Diet, and Health: Reports from Scientific Exchanges, 1998 and 2000

- 90-18 Introduction Frank M. Sacks
- 90-55 Dietary Fat Consensus Statements Alberto Arocas
- 90-55 Epidemiological Studies on Dietary Fat and Coronary Heart Disease Alberto Arocas
- 90-138 Randomized Clinical Trials on the Effects of Dietary Fat and Carbohydrate on Plasma Lipoproteins and Cardiovascular Disease Frank M. Sacks and Martin Kalish
- 90-215 Diet Composition and the Metabolic Syndrome: What is the Optimal Fat Intake? Carl M. Grunley, Maida DiCorleone and Marlene Chagnac
- 90-305 High-Complex Carbohydrate or Lower Carbohydrate Foods? David L. A. Jenkins, Guy B. C. Knudt, Luis S. A. Aguirre, and Vladimir Vasquez
- 90-385 Dietary Fat and Diabetes: A Consensus View Barbara V. Howard
- 90-415 Low-Fat Diets Are Preferred Eric Jensen and George A. Bray
- 90-475 Dietary Fat Is Not a Major Determinant of Body Fat Walter C. Willett and Robert D. Lober
- 90-605 Consensus View on the Role of Dietary Fat and Obesity John P. Florkin and Volker D. Calvo Florkin II
- 90-625 Dietary Fat and Cancer Laurence Faticchi and Edward Giovannucci
- 90-718 Bioactive Compounds in Foods: Their Role in the Prevention of Cardiovascular Disease and Cancer Perry M. Kris-Etherton, Ken D. Hecker, Ancho Boranovic, Stacie M. Coual, Amy E. Elmacki, Kristin V. Heibel, Amy E. Glat and Tony D. Etherton
- 90-895 Dietary Fat, Eating Guides, and Public Policy: History, Critique, and Recommendations K. Dor Giblin

EPIC participating countries



THE EPIC –ELDERLY PROJECT

The role of diet on the longevity of elderly Europeans
A study in the context of the European Prospective Investigation into Cancer and Nutrition

Supported by the EC, DG Research

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OBJECTIVES AND EXPECTED ACHIEVEMENTS

- To study the possible role of diet on the health and longevity of the elderly
- To identify an overall dietary pattern that maximises longevity of elderly Europeans.

106.196 subjects aged 60 years and over
 from 10 European countries

Supported by the EC, DG Research

Participating Countries

22 centres in 10 European Countries

Approximately 500.000 Europeans
 participate in the EPIC project

Coordinating Center

International Agency for Research on Cancer (IARC)
 Word Health Organization

?PIC : PROSPECTIVE STUDY

exposure

Nutrition

Lifestyle

Biological samples (*serum, plasma buffy coat*)

end-point

Cancer

Chronic diseases

METHODOLOGY

BASELINE

Dietary questionnaire (semiquantitative FFQ)

Life style questionnaire

Somatometry

Blood sampling

CALLIBRATION

24 h recall (EPIC Soft)

FOLLOW-UP



Wishing to retrieve information?

Visit our web site at:

www.nut.uoa.gr