

Traditional Cretan Diet and Longevity: Evidence from the Seven Countries Study

Christopher Papandreou*

Department of Social Medicine, Preventive Medicine and Nutrition Clinic, Medical School, University of Crete, Heraklion, Greece

A comparative study among several developed countries, which began in 1960 on behalf of seven countries, had a group of about 700 Cretan men from the countryside under medical observation: so far this group had the lowest percentage of deaths caused by coronary heart disease and different kinds of cancer [1]. This was mainly attributed to their lifestyle and especially to their dietary habits.

This study has also shown the population of Crete to be the longest living one: when, in 1991, thirty one years after the beginning of the study, the Social Health Sector of the University of Crete undertook the medical checkup of the group, about 50% were found to be still alive as opposed to Finland where there wasn't a single survivor [2]. Modifiable factors such as physical activity and diet might depict the secret formula of the Cretan long livers [3]. Another study conducted in 2000 found that elderly men from Crete had consistently lower levels of the indicators of oxidative stress and higher concentrations of major antioxidants than men from Zutphen (The Netherlands). Oxidative stress may influence the rate of shortening of telomere length, a useful biomarker of disease progression [4]. Thereafter, this study compared leukocyte telomere length (LTL) in elderly men from Northern and Southern Europe and investigated the possible relationship between LTL and indicators of oxidative stress and antioxidant status. Greek elderly men had significantly longer LTL compared to Dutch counterparts. The endogenous antioxidants serum albumin and uric acid were positively associated with longer telomeres [5]. These differences may contribute to the lower rate total mortality that has been observed in Cretan men.

Between 1970 and 1992 the increment of cardiovascular disease (CVD) risk factors that resulted in the increasing mortality from CVD was documented in Greek population [6]. A recent study examining CVD mortality during the 40-year follow up of the Seven Countries cohorts identified a slight decline in the US, Finnish, Dutch and Japanese cohorts, a moderate increase in Italy and an exponential increase in CVD mortality in cohorts of Serbia and Greece. On the contrary, the survivors from the cohort of Crete had the lowest CVD mortality [7]. Several factors have been established as risk markers for the development of CVD, such as smoking, obesity and elevated cholesterol and blood pressure [8]. Diet thus may play a dominant role in promoting or preventing CVD. The Cretans' diet in the 1960's - a variant of the Mediterranean diet - consisted mostly of olive oil, bread, abundant fruits and vegetables, a moderate consumption of fish, dairy products and wine and a rare consumption of red meat. The negative association between this diet and mortality could be attributed to the protective effect of its components containing an ample source of molecules with antioxidant and anti-inflammatory actions, among which omega-3 fatty acids, oleic acid, vitamins B6, B12, C, E, folic acid and phenolic compounds [9], fibers [10]. Abandoning this dietary pattern could have adverse effects on CVD risk factors. Since then, many socioeconomic changes have occurred in Crete [11] affecting their lifestyle and dietary habits. Namely, the traditional Cretan diet has been gradually abandoned and current Cretans consume higher amounts of saturated fat, meat, and cheese, and lower amounts of bread, fruits, vegetables, legumes, and fibre [12,13]. Moreover, the Greek Orthodox Christian diet, a periodic vegetarianism, was followed

for 180-200 days each year by the 60% of Cretan men from the Seven Countries Study in the 1960's and research has shown favorable effects on health indices [14].

The return to the traditional diet, consumed in the 1960's, should be a necessity for people from rural as well as urban areas. Nutritional tradition, culture and paradigms not only connect us with past but show a "path" to re-test, in the recent days of economical, social, and psychological crisis.

References

1. Keys A (1977) Coronary heart disease in seven countries. 1970. *Nutrition* 13: 250-252.
2. Kafatos A, Diacatou A, Voukiklaris G, Nikolakakis N, Vlachonikolis J, et al. (1997) Heart disease risk-factor status and dietary changes in the Cretan population over the past 30 y: the Seven Countries Study. *Am J Clin Nutr* 65: 1882-1886.
3. Tourlouki E, Polychronopoulos E, Zeimbekis A, Tsakountakis N, Bountziouka V, et al. (2010) The 'secrets' of the long livers in Mediterranean islands: the MEDIS study. *Eur J Public Health* 20: 659-664.
4. Houben JM, Moonen HJ, van Schooten FJ, Hageman GJ (2008) Telomere length assessment: biomarker of chronic oxidative stress? *Free Radic Biol Med* 44: 235-246.
5. de Vos-Houben JM, Ottenheim NR, Kafatos A, Buijsse B, Hageman GJ, et al. (2012) Telomere length, oxidative stress, and antioxidant status in elderly men in Zutphen and Crete. *Mech Ageing Dev* 133: 373-377.
6. Sans S, Kesteloot H, Kromhout D (1997) The burden of cardiovascular diseases mortality in Europe. Task Force of the European Society of Cardiology on Cardiovascular Mortality and Morbidity Statistics in Europe. *Eur Heart J* 18: 1231-1248.
7. Menotti A, Lanti M, Kromhout D, Blackburn H, Nissinen A, et al. (2007) Forty-year coronary mortality trends and changes in major risk factors in the first 10 years of follow-up in the seven countries study. *Eur J Epidemiol* 22: 747-754.
8. Emberson JR, Whincup PH, Morris RW, Walker M (2003) Re-assessing the contribution of serum total cholesterol, blood pressure and cigarette smoking to the aetiology of coronary heart disease: impact of regression dilution bias. *Eur Heart J* 24: 1719-1726.
9. Pauwels EK (2011) The protective effect of the Mediterranean diet: focus on cancer and cardiovascular risk. *Med Princ Pract* 20: 103-111.
10. Park Y, Subar AF, Hollenbeck A, Schatzkin A (2011) Dietary fiber intake and mortality in the NIH-AARP diet and health study. *Arch Intern Med* 171: 1061-1068.

*Corresponding author: Christopher Papandreou, Department of Social Medicine, University of Crete, Medical School, P.O.B. 2208 GR-71003, Heraklion, Crete, Greece, Tel: +30 6974303995; E-mail: papchris10@gmail.com

Received September 04, 2012; Accepted September 06, 2012; Published September 08, 2012

Citation: Papandreou C (2012) Traditional Cretan Diet and Longevity: Evidence from the Seven Countries Study. *J Nutr Food Sci* 2:e114. doi:10.4172/2155-9600.1000e114

Copyright: © 2012 Papandreou C. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

11. Kafatos A, Mamalakis G (1993) Policies and programs in nutrition and physical fitness in Greece. *World Rev Nutr Diet* 72: 206-217.
12. Voukiklaris GE, Kafatos A, Dontas AS (1996) Changing prevalence of coronary heart disease risk factors and cardiovascular diseases in men of a rural area of Crete from 1960 to 1991. *Angiology* 47: 43-49.
13. Kafatos A, Verhagen H, Moschandreas J, Apostolaki I, Van Westerop JJ (2000) Mediterranean diet of Crete: foods and nutrient content. *J Am Diet Assoc* 100: 1487-1493.
14. Sarri KO, Tzanakis NE, Linardakis MK, Mamalakis GD, Kafatos AG (2003) Effects of Greek Orthodox Christian Church fasting on serum lipids and obesity. *BMC Public Health* 3: 16.