

**Editorial****Lessons derived from studies in the elderly: the role of nutrition education in cardiovascular disease prevention****Demosthenes B. Panagiotakos***Department of Nutrition and Dietetics, Harokopio University, Athens, Greece*

Based on statistics from the World Health Organization (WHO), the proportion of people over the age of 60 years is growing faster than any other age-group and, in many countries, it is the fastest growing segment of the population.<sup>1</sup> Moreover, the life expectancy of the world population has increased up to 67-70 years, while in industrialised societies this is approximately 80 years.<sup>2</sup> As a consequence of the aging of the population as well as of the worsening lifestyle behaviours, as discussed below, there is an increase in the prevalence and incidence of cardiovascular disease (CVD) and cancer.

Over the years, several investigators have attempted to explore factors that prolong life and are associated with healthy living. Among them, the “Blue Zones” investigators reported that there are places around the world where people live much longer than the average and remain active even after the age of 100 years.<sup>3</sup> Specifically, they observed that people in Sardinia (Italy), Okinawa (Japan), Loma Linda (California), the Nicoya Peninsula (Costa Rica) and, recently, on the island of Ikaria (Greece) have some of the highest life expectancies in the world and, notably, share common lifestyle characteristics and behaviors. These characteristics include family coherence, avoidance of smoking, moderate and daily

physical activity, social engagement and adherence to a plant-based diet.<sup>3</sup>

In a research article published in this issue of *Hormones* Journal by Hatzis et al, the investigators studied the remaining survivors of the Seven Countries Study (SCS), consisting of 27 men aged 90 years and over and a younger cohort of 85 men, 53-73 years of age of the same area, for cross-age comparisons.<sup>4</sup> The SCS was a pioneer study in the field of CVD epidemiology; it was established in the late 1950s by Ancel Keys (1904-2004) in seven countries around the world and, during the 25 years of follow-up, many of the today well-established risk factors for CVD were first reported.<sup>5,6</sup> One of these factors was diet, and particularly the protective role of a plant-based diet in CVD risk.<sup>6</sup> In the work by Hatzis et al, the authors studied the characteristics of a very unique sub-group of people, those who had survived for more than 50 years after the baseline examination. To the best of our knowledge, this may be one of the longest follow-up studies in the field of CVD epidemiology. Among several interesting findings, the authors reported that the SCS survivors had gradually changed their dietary habits from those reported 50 years before. In particular, daily meat consumption had doubled over the years, daily fruit and vegetable consumption had dropped by almost 3-fold, while nutrient intake did not meet the recommendations for CVD prevention.<sup>4</sup>

The role of a healthy diet in the prevention and control of morbidity and premature mortality due to chronic diseases has been well established during the last few decades, including among the elderly.<sup>7,8</sup>

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However, it should be acknowledged that the elderly represent a population group with special nutritional needs. Many of them lose their interest in food as well as having chewing difficulties and problems in meal preparation, all of which results in deficiencies in various essential nutrients intake.<sup>8</sup>

Improving diet and nutrition should represent key public health targets, especially for the elderly. The Mediterranean diet could be such a dietary pattern that is highly likely to provide healthy living among the elderly; it is a dietary pattern which was found in specific food consumption patterns typical of the upper Mediterranean regions in the early 1960s, such as Crete, other parts of Greece, Spain, southern France and southern Italy.<sup>9</sup> In 2010, UNESCO approved the inclusion of the Mediterranean diet on the list of the intangible cultural heritage of humankind as follows: “*The Mediterranean diet constitutes a set of skills, knowledge, practices and traditions ranging from the landscape to the table, including the crops, harvesting, fishing, conservation, processing, preparation and, particularly, consumption of food. The Mediterranean diet is characterized by a nutritional model that has remained constant over time and space, consisting mainly of olive oil, cereals, fresh or dried fruit and vegetables, a moderate amount of fish, dairy and meat, and many condiments and spices, all accompanied by wine or infusions, always respecting the beliefs of each community*”.<sup>10</sup>

However, several studies, including the work by Hatzis et al, have reported that this traditional dietary pattern has, regrettably, changed to a more “westernized” type of diet, even among the elderly, due to rapid urbanization and related factors.<sup>11</sup> It is thus obvious that implementation of targeted public health services focused on disease prevention seems more important than ever before. Global planning for nutrition policies has been provided for many years; however, the role of nutrition in the health of elderly populations has not been sufficiently studied and appreciated.

Nutritional education and support throughout the lifespan could be an effective and inexpensive means of improving the quality of diet of elderly people and thus reducing disease and lengthening life. The vast majority of the prevention programs set up in order to reduce CVD incidence have traditionally focused on younger adults. Nowadays, and based on the dramatic increase of the elderly population, prevention programs should immediately expand their efforts to include older adults as well.

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