

Editorial

The Mediterranean diet: culture, health and science[☆]

First described in the Seven Countries Study in the 1960s, lower mortality rates for cardiovascular disease (CVD) are obvious in the Mediterranean region, and a particular dietary pattern is postulated to account for these findings, different from those in other European areas. Further observational studies have highlighted the potential health benefits provided by the adherence to a Mediterranean dietary pattern, through the reduction of risk factors for the majority of non-communicable diseases (metabolic syndrome and type 2 diabetes, CVD, certain types of cancer, cognitive decline, depression and mental disorders).

Data from analytical and experimental studies indicate a relationship between reduced risk of the most common chronic degenerative diseases and a dietary pattern based on high consumption of vegetables and fruit, cereals and whole grains, pulses (mainly as source of dietary fibre), nuts, fish, olive oil as the main (added) fat, low-fat dairy products, corresponding to the Mediterranean dietary pattern, whereas increased total calorie intake and body weight, especially excess body fat, overconsumption of animal fat and (red) meat, sugar and processed food, were found to be associated with a greater risk of these diseases.

Interestingly, dietary characteristics of the Mediterranean pattern, considered as a whole, seem to have more beneficial effects (e.g. favourable health outcomes and a better quality of life) than dietary interventions based on single dietary components. Favourable health effects may be attributed to the synergistic combination of a balanced ratio of *n*-6 and *n*-3 essential fatty acids, high oleic acid content, and high amounts of dietary fibre, antioxidants and polyphenols, resulting in antioxidant, anti-inflammatory, and antithrombotic properties, preventing lipoperoxidation, improving lipid profile and endothelial function.

Furthermore, other non-nutritional aspects, indirectly linked to eating behaviour, such as social, cultural, economic and

environmental features, have been suggested to contribute to the beneficial effects of adherence to the Mediterranean dietary pattern. Consumption of fresh and local products, in terms of seasonality, biodiversity, traditional culinary activities and conviviality, as well as the variety of foods (especially in terms of different colours of fruit and vegetables), represents the cornerstone of the Mediterranean dietary pattern. Cultural and nutritional aspects, jointly with regular engagement in physical activity, are fundamental parts of this comprehensive Mediterranean model or lifestyle.

Socio-cultural aspects are pivotal in the Mediterranean model, making it different from all the other dietary models. Identification of the symbolic value of food has led to the creation of strong links between local food and local heritage and identity; from an environmental and economic point of view, production of typical foods of the Mediterranean diet typically occurs in a sustainable way, contributing to rural development and the preservation of biodiversity.

Although the Mediterranean diet is the result of the millenary history of the Mediterranean basin, transmitted from generation to generation, a continuous evolution of the original model has occurred in different communities and groups in the Mediterranean area in response to changes linked to environment and historical events. The general term 'Mediterranean diet' implies a common dietary pattern in Mediterranean countries; however, Mediterranean diets are far from homogeneous, including a wealth of extremely variable, typical products. Differences in crops and dietary patterns of the Mediterranean populations reflect various food cultures and traditions, religious and cultural differences, diverse geographical and ecological environments, the succession of different dominant peoples (Greeks, Carthaginians, Romans, Arabs, Byzantines, Ottomans, Spanish, Portuguese, etc.). In recent decades, the central role played by the Mediterranean Model in social and cultural life in the Mediterranean area

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has been deeply influenced by the evolution of traditional values towards post-modern values as well as the globalised production system⁽¹⁾. In particular, the collective environment (due to the spread of compulsory schooling and to a different organisation of working time) is gradually replacing the traditional family group, and young people's tastes are now formed, to a large extent, outside the family nucleus, in places where food production and provision are simplified and industrialised, rarely reflecting Mediterranean traditions.

Recently, different events have modified the Mediterranean diet (urbanisation, integration of women into the labour market, retail development, reduction of household members and of generations living together, economic globalisation) by introducing changes in lifestyle, in distribution and sales of foods, in the selection of crops, in intensive monocultures and in livestock farming techniques. This global change entails socio-economic aspects (small-scale farmers have been forced to abandon their land, price volatility has a strong impact on poor and food importing countries, food waste is increasing along the food chain due to poor harvesting techniques and post-harvest processes, difficulties in transport and storage procedures, climate conditions) and the loss of knowledge and practices that have contributed historically to the identity of Mediterranean peoples and have configured a rich and complex food universe in the Mediterranean area. Moreover, economic changes have deeply affected the Mediterranean lifestyle, leading to the westernisation of food consumption patterns in the Mediterranean area.

The reduced environmental impact (H₂O, N and C footprint) of the Mediterranean diet is an additional positive aspect of the Mediterranean dietary model. In particular, water scarcity is the most critical problem all over the world in the production of foodstuffs and the single most important factor in limiting agricultural growth. Thus, improving water demand management, water saving and rational water use, especially in agriculture, is of paramount importance for sustainability. A dietary pattern based mainly on products of plant origin represents an important argument in favour of the Mediterranean diet.

The Mediterranean basin is also a major centre of plant diversity (terrestrial and marine flora); however, changes in the landscape and ecosystems have increased in recent decades, even in this region. Tourism, urban development in coastal areas, overfishing, intensive farming and irrigation with over exploitation of natural resources, the abandonment of traditional agricultural practices in favour of monoculture, the loss of indigenous knowledge on how to recognise, cultivate and use local crops in favour of a small number of non-native varieties, and changes in lifestyles are affecting traditional production systems across the Mediterranean area and have reduced the biodiversity, particularly relevant in preparing healthy and nutritious food recipes at the core of the Mediterranean diet heritage.

Hence, the Mediterranean diet may be presented as an example of a sustainable diet, in which nutrition, local food productions, biodiversity, culture and sustainability are strongly connected, impacting little on the environment. In fact, the dietary habits of a certain population may be considered

as drivers of environmental pressure. Therefore, the Mediterranean model represents a case study of a sustainable diet model demonstrating how to improve the sustainability of food systems by counteracting the degradation of ecosystems and the loss of biodiversity. Finally, these beneficial aspects may be found not only in individuals and in the community in terms of health but may also arise in terms of well-being and sustainability to society as a whole. A Mediterranean diet can be considered a 'proximity model' of consumption and represents a sustainable resource for the Mediterranean area. In fact, the Mediterranean model is based on local food systems (local production and local consumption), conviviality, frugality, and seasonality and encourages sustainability.

Despite its increasing popularity worldwide, the Mediterranean diet, inscribed by United Nations Educational, Scientific and Cultural Organization (UNESCO), in 2010, in the Representative List of Intangible Cultural Heritage of Humanity, is today endangered in all countries of the Mediterranean area. The abandonment of traditional healthy habits and the emergence of new lifestyles associated with socio-economic changes pose important threats to the preservation and transmission of the Mediterranean diet to future generations.

The World Forum for Nutrition Research Conference organised in Reus (Spain) provided the opportunity for a comprehensive overview of the latest research developments in relation to the health benefits, as well as other social and cultural aspects, of selected typical Mediterranean foods. The World Forum for Nutrition Research emerged as the meeting point of three major events occurring in Spain in 2013: The International Congress of Nutrition (in Granada) organised by the International Union of Nutrition Sciences, the World Congress on Nuts and Dried Fruits (in Barcelona) organised by the International Nut and Dried Fruit Foundation, and the International Congress on Mediterranean Diet (in Barcelona) organised by the Mediterranean Diet Foundation. In fact, this Forum was organised with the collaboration of the Ibero-american Nutrition Foundation (FINUT), the International Nut and Dried Fruit Foundation, and the Mediterranean Diet Foundation. In May, 2013, many distinguished scientists around the globe agreed to join the faculty participating in this Forum. Papers presented in the form of plenary sessions, symposia and oral communications included superb scientific material originating from laboratories around the globe, assuring the meeting to be a major scientific event with more than 500 delegates. In the present British Journal of Nutrition supplement, a selection of the best papers presented to this important event have been collected. The different papers offer an updated review of the different foods and their role in the Mediterranean diet. From the foods to the whole pattern is our definitive concern.

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