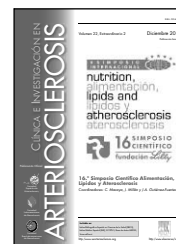


CLÍNICA E INVESTIGACIÓN EN ARTERIOSCLEROSIS

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16.º SIMPOSIO CIENTÍFICO ALIMENTACIÓN, LÍPIDOS Y ATHEROSCLEROSIS

Olive oil, Mediterranean diet and health

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Olive oil is an integral part of the diets of most Mediterranean's. Although different regions in the Mediterranean region have their own diets, several common characteristics can be identified, most of which stem from the fact that olive oil occupies a central position in all of them¹. Indeed, it would have been impossible to consume the high quantities of vegetables and legumes, which characterize the Mediterranean dietary pattern, were it not for olive oil that is traditionally used in the preparation of these dishes (Fig. 1). Although figures vary by time and place, olive oil contributes almost 20% of the total energy intake in Mediterranean menus. Since olive oil is rarely, if ever, used in isolation, it is difficult to disentangle the effects of olive oil per se from those of the Mediterranean diet as a whole. Indeed, even randomized intervention trials cannot properly evaluate the importance of olive oil, because the compared diets need to be isocaloric, which implies that the addition of olive oil has to be accompanied by reduction of another energy-generating nutrient, a substitution that may or may not be neutral with respect to the outcome under study². Thus, the effects of olive oil on health and disease have frequently been assessed through epidemiological studies focusing on the Mediterranean diet. In these studies, the isolation of the effects of olive oil must rely on statistical assumptions and procedures, as well as on biological considerations.

Studies evaluating the role of Mediterranean diet and/or olive oil on health and disease can be distinguished into six categories:

—Ecological studies correlating Mediterranean dietary patterns or olive oil consumption with overall or cause-specific mortality.

- Case-control studies assessing the role of olive oil on the occurrence of certain diseases.
- Epidemiological studies in non-Mediterranean countries assessing the role of Mediterranean-like dietary patterns or monounsaturated lipids (the dominant chemical constituent of olive oil) on the incidence of, or mortality from, certain diseases.
- Biochemical studies focusing on the constituents of olive oil and the health properties of these constituents.
- Prospective cohort studies in Mediterranean or non-Mediterranean countries directly assessing the effects of the Mediterranean diet and, wherever possible, of olive oil, on longevity.
- Randomized intervention studies.

Prospective cohort studies undertaken in Mediterranean countries have shown that adherence to the Mediterranean diet is associated with lower overall mortality and thus longevity³. Even in non-Mediterranean countries adherence to Mediterranean dietary patterns is associated with longevity^{4,5}. In some studies, olive oil itself has been found to improve blood lipid profile⁶ to be inversely associated with arterial blood pressure⁷, and prolong survival of diabetics⁸. These studies provide strong evidence that olive oil and the olive oil-centered Mediterranean diet contribute to health and longevity.

A randomized trial undertaken in Spain has provided compelling evidence that, in comparison with a low-fat diet, a Mediterranean diet rich in olive oil and nuts has beneficial effects on plasma glucose levels, systolic blood pressure, and blood lipid profiles⁹. Several other randomized trials are currently in progress and are expected to provide valuable evidence concerning the effects of olive oil and its constituents (Table 1) on health and disease, as well as on the mediating physiological processes.

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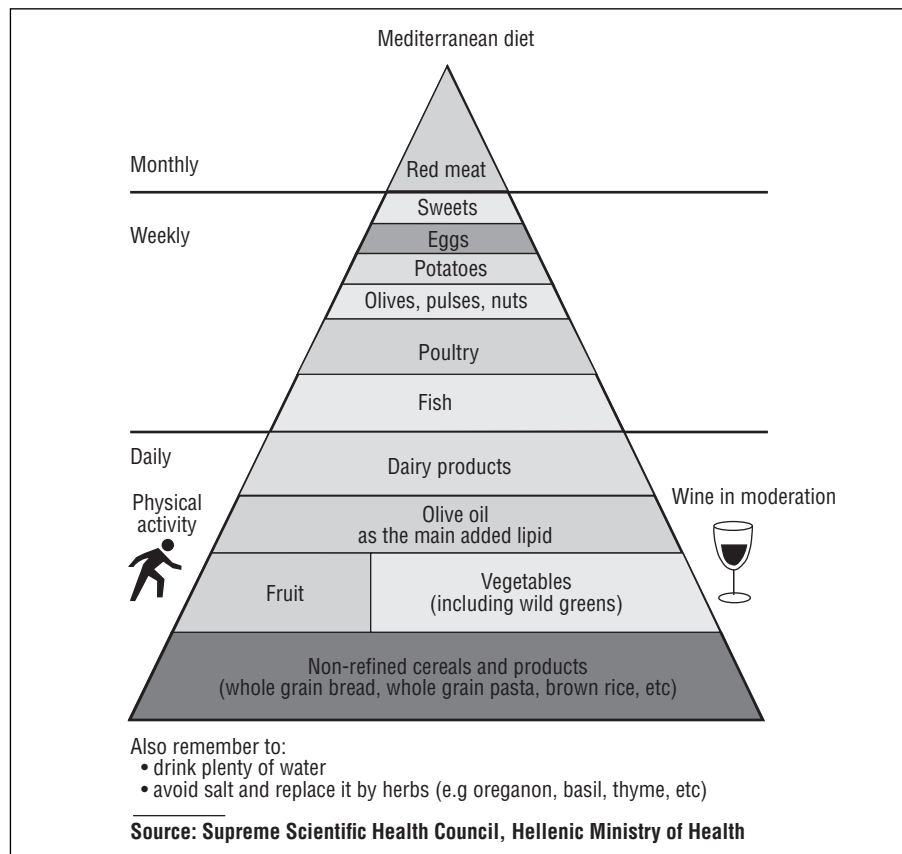


Figure 1 Mediterranean diet.

Table 1 Main classes of antioxidant compounds reported to be present in virgin olive oil¹⁰

Chemical class	Subclass
Phenolic compounds	Phenolic acids
	Tyrosol, hydroxytyrosol and derivatives
	Lignans
	Flavonoids
	Tocopherols
	Closely related non-phenolic compounds
Hydrocarbons	Triterpenes (mainly squalene)
Chlorophylls	Chlorophyll and derivatives
Carotenoids	Carotenes (hydrocarbons)
	Xanthophylls

Conflict of interest

The author declares she has not any conflict of interest.

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