

# Is atherosclerotic disease closely associated with a diet rich in calories?

## Editorial

Atherosclerosis is an epidemic disease of the developed, but also developing countries characterized by a chronic immune-inflammatory and fibro-proliferative process that leads to the formation of the atherosclerotic plaque in the artery vessels. These meet weakening of the wall and, consequently, hemodynamic alterations of the blood flow different for degree and type.<sup>1-3</sup> Atherosclerotic plaque, which reduces arterial lumen patency up to complete occlusion due to thrombosis and its complications, primarily consists of lipid deposits and "hard substances" like calcium as well as fibrous tissue.<sup>4</sup> Among the different factors usually involved in the development of atherosclerotic disease, metabolic disorders, which, in some cases, may be mainly associated with food consumption, have been assessed.<sup>5-7</sup>

So, does a diet rich in calories influence atherosclerotic disease?

Several reports emphasize that atherosclerosis is known to be developed also in ancient times. First observations related to this pathology<sup>8-11</sup> are dated back to Egyptian mummies, whose arteries demonstrated lesions characterized by adipose deposits of lipids irregularly distributed in different body organs, including heart and brain. However, these deposits differed widely from a typical atherosclerotic plaque, but could be interpreted as due to lifestyle habit of the period and type of nutrition. When, ancient Egypt nutrition is examined,<sup>12</sup> can be clearly seen that it consisted of bread, vegetables, fruit and, among the meats, mainly fish and poultry, all this food depending on the Nile inundation, which makes rich in water and fertile soil. In addition, data would document a moderate consumption of olive oil.

As can be seen, this type of diet contained a good variety of substances, but, substantially, not exceeding in calories as Mediterranean diet is.<sup>13</sup>

The Mediterranean diet is a modern nutritional recommendation originally inspired by the dietary patterns of those areas in the Mediterranean sea like Southern Italy, Spain and Greece mainly devoted to fishing and agriculture. It would seem to be characterized by a reduced rate of cardiovascular disease and events when compared to diet followed in other western countries worldwide. The main contents of the Mediterranean diet usually include proportionally high consumption of olive oil, legumes, unrefined cereals, fruits, and vegetables, moderate to high consumption of fish, moderate consumption of dairy products (mostly as cheese and yogurt, particularly in some regions of Greece), moderate red wine consumption, and low consumption of meat and similar products.

There would be evidence that the caloric amount provided by this diet could lower the risk of heart disease and premature death.<sup>14</sup> In addition, even in case of a large calorie consumption due to physical activity or other performances, a reduced cardiovascular risk can be attributed to the Mediterranean diet. There is also evidence that changes in endothelial structure similar to those observed in the first phase of atherosclerosis accompany systemic arteries of newborn<sup>15</sup> and are independent of food consumption.

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## Conclusion

In conclusion, evidence indicates that the constituents of a dietary regimen rather than the amount of calories are responsible to induce and/or potentiate the same mechanisms associated with the development of atherosclerotic disease. A diet with excess of saturated fats, large amount in meat proteins and alcohol consumption may undoubtedly favor the development of an atherosclerotic pathology. Finally, the lifestyle related to the modern society is a factor strongly conditioning the type of diet to be followed. Thus, a large number of individuals, even if agreed, are far to adopt a Mediterranean diet because of evident difficulties to find ready-made products so composed.

Therefore, the message of this editorial is to recommend the individuals to have a diet regimen mainly composed of unrefined and wholesome food typical of the Mediterranean diet and control possible caloric excess by a programmed physical activity in an attempt to reduce, generically, the atherosclerotic effects of the diet.

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## Conflicts of interest

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