



Opinion

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Food and Health

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People have an intuitive perception concerning the goodness or harm of the food consumed. From childhood we receive opinions, usually without criteria, on food characteristics, labelling them, at least some, as “good” or “bad”. In fact, there are not bad foods, with perhaps the exception of trans fatty acids, only a misuse of them like when excessively consumed as in developed countries. At the contrary, the deficit of some foods can promote illness. There are foods, however, with beneficial effects beyond to those strictly nutritional. Currently, the terms “healthy food” and “harmful food” are frequently used. There are also huge advertising campaigns, both in the media and in food labels, for supposedly healthy food or food enriched with healthy components. This fact contributes to develop dietary habits obsessively based on these products’ consumption, with an overfeeding by them, and promoting, in some cases, a nutritional disbalance or an unhealthy nutrient gathering. Sometimes, people think about food as a medication. They do not realize that nutrients exert a weak effect when comparing to medicines, drugs, toxics, or carcinogens which are powerful molecules with strong and immediate action. Due to this, for achieving effects with foods a long-time exposure to them through dietary habits is needed. The current high increase in life expectancy in developed countries favors the display of the effect of food. Healthy dietary habits preserve health. At the contrary, unhealthy ones could contribute to illness development.

Other way to accomplish a healthy effect from food is through nutraceutical approaches. In this case, food natural components or active principles are isolated and capsules, pills, vials, syrups, or other nutraceutical formulations are prepared and in which,

unlike drugs, no chemical synthesis is involved. Results from some research points out to a positive effect on health for these active components. The efficacy of them out of the food matrix, however, has in most cases not been properly established, their concentration in the nutraceutical being higher than that in the natural food. From a safety point of view, pharmaceutical drugs go throughout a strict evaluation procedure before their release on the market and are followed throughout a pharmacovigilance process when released. Nutraceuticals, however, are not submitted to these controls, and solely follow the general rules for food products labelling, presentation, and publicity. Food complements can be useful, but in some cases, they have been a risk for health. As an example, the beta-carotene-vitamin A combination which did not only it not provide any benefit but increased cardiovascular and cancer risk in smokers and in asbestos workers. Also, harmful effects concerning an increase in prostate cancer risk have been described in healthy vitamin E consumers. In this sense, hepatotoxicity due to a high polyphenol ingestion in individuals with some genetic variants, or by drug interactions which increase polyphenol bioavailability, have also been described. It has been proposed that the use of exogen antioxidants can impair the cancer cell evolution for arriving to a viability limit state. This fact would impair the host response on developing defense mechanisms such as apoptosis (genetically programmed cell death by which the body throw off needless or abnormal cells). In words of James Watson, one of the DNA discoverers, antioxidants produced by cancer cells block the efficacy of the oxidant therapies (Watson J. 2013 Oxidants, antioxidants and the current incurability of metastatic cancers. *Open Biol* 3: 120144. <http://dx.doi.org/10.1098/rsob.120144>).

Due to this, antioxidant supplementation can be harmful for these patients. Also, the ingestion of these supplementations goes against the healthy habit of having the active principles by a natural way, and in physiological quantities, through food ingestion and in the frame of a global healthy lifestyle.

This approach of active principles isolation and formulation rule for several foods, the olive oil being one of them. In some cases, it could be useful, but it needs to be scientifically proven. Due to this, new research on the biological activity of the current nutrients present in human food is needed to establish scientific recommendations for population health and on the safety of the foods. A solid scientific background is the main tool for food nutritional and health claims.

Currently, for healing illnesses we have all medical treatments, whereas health prevention would be the most appropriate approach concerning food. In this sense, olive oils have been shown to have beneficial properties for health prevention in the context of a healthy lifestyle. They have shown to be effective on primary and secondary prevention of some cardiovascular diseases. In some cancers, such as the breast one, a healthy diet has shown to reduce the secondary effects of conventional therapies, to improve treatment results, and to reduce recurrence and mortality risks. It has been truly demonstrated that the Mediterranean area has a healthy diet and a healthy lifestyle. Virgin olive oil, the hallmark of the Mediterranean diet, has both fatty and minor components which have been proven to have healthy properties by a wide scope of researchers.