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COMMENTARY

What are we doing concretely for the food prevention of cancer? Nutrition between scientific evidence and myopic policies

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Abstract

Scientific research has often investigated the role of diet as a risk factor for cancer development. It is well known that cancer has a multifactorial origin in which several factors are involved: genetic predisposition, dietary factors, personal habits, and infectious and environmental factors. In this Commentary, the role of diet in cancer is discussed following the scientific evidence suggesting that excessive consumption of red meat and processed foods is correlated with a greater risk of contracting cancer. Nevertheless, public health strategies on nutrition in cancer prevention are struggling to take off. The decision to pursue a healthier diet, along with a healthier lifestyle, often comes when the cancer diagnosis is made and not before. On the other hand, scientific evidence demonstrates how nutritional support is increasingly important during oncological treatments. This paper highlights how far we are still from the global adoption of a healthy and sustainable food style from a health, economic, social and environmental perspective. Additionally, it highlights the ancient vision of the role of nutrition on cancer development in which diet is seen only as a possible risk factor, underestimating the protective role in terms of cancer prevention and the modulatory one once the oncological diagnosis has been made.

Keywords: cancer prevention, epidemiology, health policy.

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Commentary

Gonzalez et al.,[1] in their EPIC study published in 2010, analyzed the role of diet in cancer epidemiology. The eating habits of the world population change over time, but the chronic consumption of specific foods continues to represent a risk factor for carcinogenesis.[1] The EPIC study does not simply address the subject of nutrition in cancer prevention but recommends that the adoption of public health policies is crucial to improve the quality of life of populations. Additionally, the EPIC study is considered a monumental work of its kind; it is a prospective multicentre study conducted in 10 European countries, including a population of 519,978 patients, aged 35–70 years and recruited between 1992 and 1998, with the aim of assessing the correlation between diet, both in terms of protective foods and in terms of 'risky' foods, and cancers with the greatest epidemiological incidence: gastric, colorectal, lung, breast and prostate cancers. In general, 'risky' foods for the development of cancer are considered to be red and processed meats, saturated fats and alcohol, whilst fruit and vegetables are 'protective' foods.[2,3] The EPIC study remains the cardinal study in Europe regarding the correlation between cancer and diet — no study conducted in the following years has contradicted the conclusions reached by Gonzalez et al.

The international scientific community agrees with the earlier classification of 'risky' and 'protective' foods; nevertheless, few and only minimally efficacious public health measures have aimed at promoting a healthier diet on a global scale. Despite the many initiatives and issues by scientific societies, government authorities and their respective health systems are still struggling to incorporate scientific recommendations and translate them into laws to protect public health.[4]

In a study published in 2021, Frank et al.[5] explained how the consumption of red and processed meats is still very high in all of North America, including Canada, the USA and Mexico; in the same work, the authors declare that there are nutritional recommendations in all three countries to limit the consumption of these foods albeit with no practical impact on an economic and commercial level. The authors concluded that there is a need to resort to more severe political measures such as the introduction of taxes on junk foods to promote a healthy and sustainable eating style.[5] The situation is no better in Europe, where the consumption of red and processed meats is equally high. Cocking et al., in a work published in 2020, showed that, in Europe, the average consumption of red meat in the adult population is ~75–233 g/day, a quantity that exceeds the upper limit recommended by the World Cancer Research Fund (71.4 g/day).[6] The consumption of red and processed meats is also high in Asia, where it even seems to be progressively increasing. In a recently published study, Kityo et al. investigated the correlation between meat intake and mortality in a large cohort study in Korea.[7] Therefore, given the high levels of consumption of red and processed meats, there is certainly a problem in the field of health prevention on a global scale.

Similarly, the nutritional landscape with regard to the consumption of fruit and vegetables remains quite tragic. According to a survey by the Statistical Office of the European Union (EUROSTAT), in 2019, about 33% of European citizens said that they did not consume fruit and vegetables in their daily diet and only 12% consumed at least five portions, as recommended by the nutritional guidelines.[8] Not even the Mediterranean diet, considered a healthy diet model, has managed to impose itself on government dossiers to provide a general guideline on what and how much to eat to live in health.[9] Although several studies have shown that the Mediterranean diet reduces the incidence and mortality from oncological, cardiovascular and neurocognitive diseases[10]; its diffusion outside the Mediterranean regions, both in Europe and in the rest of the world, encounters some obstacles. The Mediterranean diet, though it has proven to be a healthy diet, does not enhance the cultural aspects connected to nutrition in non-Mediterranean regions; in fact, recommending it on a global scale has social, cultural and economic repercussions because it would force entire regions of the world to change a dietary style handed down over the centuries.

In a work published in 2021, entitled *The whiteness of the Mediterranean diet*, Burt analyses the topic of the Mediterranean diet from a historical, sociopolitical and nutritional perspective, alluding to the fact that its supremacy in the field of food and nutrition constitutes a form of 'food racism', imposing a dietary model above those typical of the different cultures.[9,11]

Nevertheless, despite public health measures on nutrition in cancer prevention often being insufficient, nutrition is conquering the battlefield, claiming its importance as a 'simultaneous therapy' to active oncological therapy.[12] Some evidence suggests that nutrition is a modulating factor of oncological treatments by affecting outcomes such as adherence to therapy, continuity of care, quality of life and patient survival.[13]

The American Society of Clinical Oncology (ASCO) guidelines on the positive role of diet, together with physical exercise and body weight maintenance, during cancer treatment have recently been published. European Society for Medical Oncology (ESMO) also highlighted this issue as demonstrated by the publication of the official manual *Nutrition and Cancer* in 2011, aimed at medical oncologists to deepen the topic, going beyond the risk-protective factor paradigm.[14,15] As observed by Salas et al. in 2022, nutritional support in all its forms and according to clinical needs, oral and artificial, has a significant impact on oncological outcomes; the authors also underline the importance of nutritional checks during the various oncological settings: on active therapy, during follow-up and in the palliative setting.[16]

Given the above, we now understand that the binomial of nutrition and cancer is inseparable and confirm the evidence-based role of diet as a risk/protective factor, depending on foods, in cancer development. Nevertheless, public health strategies in cancer prevention encounter many kinds of obstacles, and it is difficult to analyze them all. Political, economic and sociocultural reasons still prevent the full implementation of scientific recommendations. Government authorities certainly have some responsibility for this problem and could do more, for example, by starting to completely ban junk food in public canteens. Whilst waiting for the authorities, the self-determination of the individual in adopting a healthier food style remains crucial, given that the first engine of change resides in our individual responsibility.

However, not all is bleak on the horizon — an increasing number of scientific studies have been published on the correlation between nutrition and cancer, medical attention to this issue is growing in most care settings, and there is generally a greater collective awareness of the central role of diet in individual health, one's responsibility to make correct food choices. A recent giant leap in scientific research is the introduction of the concept of nutritional modulation of oncological treatments definitively decreeing the triple importance of nutrition in the oncological field: acting as either a risk, protective

or modulating factor. The game against cancer is won if played well in advance. This means that effective primary and secondary prevention strategies must be adopted on a global scale. Often, the attention of health authorities is placed on secondary prevention, that is, oncological screenings that allow for an early diagnosis of tumours, yet we must not forget the importance of primary prevention. According to the World Health Organization, 30–40% cancer burden can be attributed to lifestyle risk factors such as tobacco smoking, alcohol consumption, a diet low in fruit and vegetables, overweight and obesity, and physical inactivity. This must change.

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