The role of olive oil in lowering cancer risk: Is this real gold or simply pinchbeck?

For ancient Greeks, the olive tree was a symbol of success and peace, and the extracted oil was anointed on important members of the society. It was believed that prosperity and wealth depended on this ritual, and not only olive oil, but the olives themselves, constituted an indispensable food in ancient Greeks' diet. Today, our society is not as interested in these allegorical implications, but rather in pragmatic consequences to our health. Moreover, ICR mice fed with fatty intakes rich in oleic acid uptake was not found, pointing out some other protective components contained in the unsaponifiable fraction of the oil. Other epidemiological studies have reported that the consumption of olive oil is inversely associated with cancer of the ovary, endometrium, lung, pancreas, oral cavity and pharynx, and even with a better prognosis in male laryngeal cancer patients. However, the accumulated evidence in these cancer sites is relatively limited and more studies should be carried out in order to claim any solid link between the variables under study. We should also keep in mind that, before going for a causal interpretation of the inverse relation between olive oil intake and risk of malignant neoplasms, we should rule out residual confounding, as well as some of the limitations that may be present when the reported associations are modest and they arise from observational epidemiological studies (in this case, mainly case-control designs).

In summary, different studies have shown that olive oil may have a potential role in lowering the risk of malignant neoplasms. But there are still some remaining questions. Is the effect real or confounded? Which are the cancer sites potentially preventable? Is the effect derived from the monounsaturated fatty acid content or is it related to the antioxidant components of the unsaponifiable fraction? In other words, if there is a causal effect, is it restricted to virgin olive oil or is it the same in refined olive oil? Is it the same thing to use raw oil (for seasoning) as cooked oil (for frying)? Are there effect modifiers that could increase a possible positive effect or minimise such an effect? How long should we wait and what kind of extra evidence do we need to promote a reasonable message to the population and how careful or resolved should that message be?

With regard to human studies, but now moving to analytical, individually-based research designs, there is a growing body of knowledge, although it is restricted to observational studies. Different sites of cancer have been reviewed and the studies have been mostly based on retrospective and prospective case-control studies.

Centring our attention on these types of designs, the possibility of a moderate but significant reduction in the risk of colorectal cancer through olive oil intake has been pointed out in at least two studies. In addition, the role of olive oil in the potential prevention of breast cancer has been given attention, and two studies from Spain, one from Greece and another from Italy have shown a reduction of around 25% of risk when comparing women who were classified as relatively high consumers of olive oil with those who consumed other types of oil or fat, but not olive oil. In a multinational study carried out in five European centres that examined the relation of adipose tissue fatty acid content to breast cancer, a direct effect of oleic acid uptake was not found, pointing out some other protective components contained in the unsaponifiable fraction of the oil.
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