



## In Oncology, your Outcome will also Depend on what you Eat

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Malnutrition has always been linked with malignancies. One of the earliest signs of many cancers is the weight loss. Nowadays, the nutritional support and the improvement of the enteral/parenteral feeding guidelines changed the outcome of the cancers. However, the nutrition before and after the diagnosis of the malignancy is as important as it is during the anti-neoplastic treatment period. It should gain a better reputation knowing that it is a risk factor leading to the development or recurrence of many cancers, as well as its association with an increased morbidity and mortality secondary to the cardiovascular diseases and metabolic syndrome.

It is well known currently that one third of cancer deaths are related to dis-equilibrate poor dietary habits and sedentary life style: high fatty body, physical inactivity, lots of fat, sugar, consumption of processed foods and low intake of vegetables and plants. Moreover, many foods contain some carcinogens, promoting the development of dysplastic and cancerous cells. In the same perspective, the body fatness was reported in many publications, as highly correlated with cancer risk. Fatness is linked with up to 33% of breast, renal, colon and other gastro-intestinal tract cancers. One of the main explanation is that adipose tissue is hormonally active, thus modifying the hormonal environment of the body, and resulting in the secretion of autocrine and paracrine chemical signals that alter the normal cell functioning, increasing the mutational loads and dysplastic changes. So, the obesity is a major risk factor for many cancers, and it should be avoided as a preventive measure for disease occurrence or recurrence. Hence, the survival outcomes were better when the patients had a lean body after they finish their anti-neoplastic treatments. Additionally, the consumed nutrient can also impact the cancer cells growth and dissemination, either directly or indirectly, via several mechanisms: the management of the surrounding biochemical conditions, the oxidation, the inflammation, the immune-suppression and immune-modulation. Unhealthy dietary fat intake and high sugar diets are well known to be linked with immune-suppressive mechanisms, thus should be consumed with caution, especially after knowing the effect of our immune system in controlling the malignancy.

Furthermore, the enormous international disparity in cancer prevalence with certain populations affected by certain types of cancers rather than others, and the effect of the migrant populations on cancer incidence in some countries strengthen the effect of the environmental/nutritional factors on cancer development. For example, the meat intake, which has been an important area of cancer research since many years, is disproportional between developed countries (high consumption) and less developed countries (low consumption). The meat-cancer correlation was reported in many epidemiologic studies, confirming once again the connection

between the dietary habits and cancer occurrence: greater risks of esophageal cancer, hepatocellular carcinoma and colorectal cancer. The risk is higher if the meat is eaten in the form of red meat (more than once per week), grilled meat (more than twice per week) and mainly processed meats (rich in carcinogens). Consequently, it was also found that there is about 40 - 50% decrease in cancer prevalence in populations consuming large amounts of fruits and vegetables.

Knowing that 1/3 of cancers are prevented by an equilibrated diet and physical activities without any shown benefit from fasting diets and carbohydrate restriction regimens, all the societies of Medical Oncology are stressing on the importance of weight equilibration and avoidance of obesity after the end of the chemotherapy, in order to prevent a new primitive or the recurrence of the cured cancer. It has been published in the literature that 30 - 50% of women suffer from excess of weight after the end of their adjuvant chemotherapy and during their endocrine therapy. The obesity in this population was shown to increase the risk of disease relapse. In the male population, it was also shown that 8 - 40% of young patients have an excess of weight in the following 5 to 10 years after the achievement of chemotherapy for germ cell tumors. There was a frank correlation with an increased risk of cardiovascular complications and non-malignancy related death. In this perception, many programs were developed to avoid the excess of weight during the remission period, encouraging the physical activities and emphasizing the role of dietary programs consisting of dietician consultations and follow up.

In conclusion, the nutrition is important in our daily life style. Concerning the oncologic patients, the dietary life style has been shown to determine the risk to develop cancer, to affect the outcome while receiving the anti-neoplastic treatment (chemotherapy, endocrine therapy, radiation therapy or surgery), then to affect the survival in the post therapeutic period when they are free of cancer. Clinicians and medical oncologists should insist on their patients to take care of their nutrition and daily habits. The healthier their life style is, the better will be their outcome: *"Eat to fuel your body, to fight not to feed the cancerous cells"*.

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