

# What Can We do to Prevent Gastrointestinal Cancer by Using a Proper Diet and Avoiding Risk Factors?

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**Abstract** Gastrointestinal cancer occupies almost half of all tumors which occur in today's time. Etiology tumor formation at the molecular level is now the subject of many studies, it mentioned that the number of factors from hereditary to acquired mutations in the base of which can be factors external to the environment and nutrition. Recently, the author emphasizes the quality and style of life that constantly affect the general health of the individual but of course that their disorder can be both a cause and a consequence of the tumor. In spite of all preventive action of new information to a large extent can prevent the formation of tumors and it is suggested to avoid the corresponding food as well as special attention to the way of preparing food.

**Keywords** Cancer, Digestive, Prevention, Food, Risk factor

## 1. Introduction

Neoplasia is a pathological process that implies a change in cell growth and division, where in the one uncontrolled share (hence the term tumor that is the swelling and increase of tissue and a portion of a particular organ, which is caused by changing the above-mentioned). Neoplasms can be divided as benign or malignant in accordance with their potential to cause damage or death of the host in accordance with their histopathological, biochemical, morphological or molecular changes in cells. Malignant tumors cause extreme disorders of homeostasis of the host, leading to death on account of different ways (erosion of the great arteries, embolisms malignant cells, cancerous cachexia, secondary infection).

Taking into account that the treatment of tumors is not always successful, special attention should be paid to the early diagnosis and detection of tumor whereas the tumor is smaller in the initial phase, because then the most successful treatment [1]. For this reason, it is recommended to regular controls, and reviews, including various preventive (screening) methods, and the administration of continuous training populations on the role of early diagnosis of tumors.

### 1.1. The Etiology of Cancer

The etiology studies and finds the risk factors of their action in a given time period as a result of the creation of

tumor cells administered and the appearance of tumors. There are several mechanisms that lead to tumor formation, and as one of the more frequent is the exposure to certain risk factors. There are a number of risk factors to both exogenous and endogenous whose direct or indirect effect triggered by a tumor process. Exogenous factors are those that come from the exterior environment (tobacco and tobacco smoking, alcohol abuse, ionizing radiation, UV radiation, carcinogenic substances present in the work environment (occupationally exposed to carcinogens) and excessive use of some drugs, viruses, bacteria and toxins. Each of these factors acting either individually or in conjunction to the development of numerous types of tumors [2]. Ionizing radiation as a contributory factor, its effect of leading to ionization and excitation of the tissue, and leads to changes in the biochemical processes within the cell, making changes to the DNA, and causes the change in the distribution of cells and the creation of modified, ie. tumor cells. Tobacco smoke contains a large number of active chemicals that have a carcinogenic effect [3]. Tobacco use is commonly associated with the use of alcohol, drugs, and the final effect is cumulative. This may lead to the development of cardiovascular diseases associated with the endocrine and then to all these factors facilitate the development of tumors [4,5].

Alcohol consumption has been shown as one of the risk factors for developing cancer of the digestive tract. It has been shown that the daily consumption of alcohol and in larger quantities and is certainly linked to the development of tumors [6]. Although there may be neurological and psychiatric manifestations, there is a serious risk of the formation of tumors, most often the digestive tract (colon,

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stomach, rectum).

Diet is one of the unavoidable risk factors that may directly or indirectly contribute to the formation of tumor processes. Nutrition is simply the need for the survival of each individual, but that's why you should pay attention to what is consumed from foods and what properties organism they provide. In food is also an important caloric value, which leads to a feeling of satiety, or in addition to it, it is extremely important food composition, and a proper ratio of vitamins, minerals, fats, carbohydrates and proteins. Especially need to pay attention to the foods that have the factory itself added additives and emulsifiers and sampled tumors of the stomach and colon. In contrast, tumors of the esophagus can usually be incurred due to intake of hot or spicy food. Decreased protein intake leads to a reduced operation of the immune system, but is too high can be linked to the development of some types of tumors [7,8,9].

Excessive intake of carbohydrates burdens the work of the pancreas, while too much fat intake leads to fat accumulation of too generous, and the development of obesity. Today, obesity is a risk factor for the development of simplified types of tumors [10]. For tumors in the colon mechanism of occurrence is associated with poor long-term process of digested food as well as the long-term presence of carcinogenic substances. Lately paying great attention to life quality and is considered as a lifestyle largely determines the order will be the general health condition of man, and of course the Function of individual organs [11,12].

The style of life would mean the basic habits of the individual in daily life and work to help the health or lifestyle includes regular use of physical activity as one of the key factors for the existence of homeostasis [12]. Without physical activity, there is a series of changes in the body, which preferably may influence the endocrine system and the cardiovascular system [13].

Genetic tests are now used to prove predisposition to develop tumors, and also when the tumor occurs, it is necessary to do genetic analysis because some of the mutations in the tumor may be associated with poor clinical outcome, while other genetic changes may be associated with a worse outcome [14]. Genetic research today are the basis for the study of the mechanism of development of cancer, but also for improved diagnosis and treatment [15].

### 1.2. Epidemiology of Cancer

By conducting various epidemiological studies provide data on the causes, incidence and mortality rates for patients suffering from cancer [16] and based on that it is possible to carry out the planning and implementation of preventive measures to prevent the formation of tumors. In addition, there is the possibility of studying specific factors present in a given environment, such as the existence of a large number of industrial plants, where continuous exposure of the damage effect of the industrial waste, and toxic substances leading to cancer. These segments of the population should be designated as high-risk groups in which because of the

daily action of this causes, and excluding all the individual risk factors, there is a high possibility of occurrence of a tumor [17]. These risk groups according to mark and carry them more frequent screening methods for the purpose of maintaining health in a given population [18].

## 2. Diagnosis of Gastrointestinal Cancer

Gastrointestinal cancer occupies almost half of all tumors which occur in today's time. Although a lot is known about the causes of their occurrence, says pathophysiological mechanism is still not in full detail [19]. The symptoms of tumors of the digestive tract occur late enough unlike other tumors, which creates numerous clinical dilemmas in diagnosis. The anatomical structure of the digestive tube and their elastic allows the tumor to be a long time to develop and growth contributing that many tumors are initially asymptomatic. The clinical symptoms in the majority of digestive cancer cases occurs only when the tumor by its size puts pressure on other organs and when there is already a suspicion that there has been a local invasion contributing penetration of the malignant cells into the surrounding tissues or distance organs, (metastasis) [20,21,22].

## 3. Review of the Past Research

In the prevention of gastrointestinal cancer nutrition with promoting a proper and healthy diet should be the main task of primary health care. To promote the highest responsibility of family doctors and nurses in health centers as a basic primary-health-care institution. Education of the population can be implemented in several ways, and some of the most popular are: distribution of brochures about healthy eating, holding public meetings and educational character, whose main organizers and educators were nurses and medical staff including technicians [23]. It is crucial that these actions are supported by the state, ie. competent ministries of health, because the only way these actions can be fully successful.

The diet is necessary to add all of life's important minerals, vitamins, proteins, lipids, carbohydrates, antioxidants, all in order to maintain homeostasis of the organism [24]. Foods that can meet all these needs are classified into several groups. Featured are two types of fiber (soluble and insoluble). Insoluble fibers aid in better distribution of food in the digestive system and reduce exposure to toxic factors [25]. High-fiber foods are fruit (apples, pears, bananas), vegetables (e.g. broccoli, carrot, beetroot, red beans), oat grains, flax seeds, legumes (peas). Intake of antioxidants and beta-carotene can prevent the formation and action of free radicals whose increased concentration is associated with carcinogenesis [26,27].

Fruit recommended use of apricot, peach, melon, mango, and of vegetables: carrots, pumpkins, cabbages (cabbage, kale, radishes) [28]. One of the best protective factors for the development of gastric cancer is the onion, and colon and

rectum is garlic. Lycopene is also a powerful antioxidant, and it can be found in watermelon, red grapefruit, red orange and tomato [29]. Data suggested that calcium and vitamin D may prevent the cell division of cancer cells [30]. Foods rich in vitamin D are freshwater and saltwater fish, milk, eggs, pork. Calcium rich foods include: milk and milk products, orange, white beans, sardines, and vitamin B containing foods: liver, milk, eggs, fish, nuts.

Publication of results and evidence has been shown that in almost 47% of cancers of the digestive tract can prevent healthy lifestyle and diet. Based on literature data, which has been applied in the meta-analysis in order to detect the connection between the input fiber and the development of tumors of the digestive tract, it appears that the use of these fibers can not prevent the formation of tumors in the proximal part of the colon, with a probability of 95%. This study is definitely shown that a diet with vegetable fiber plays an important role in the prevention of colon cancer. Intake of dietary fibers can reduce the production of toxic metabolites during digestive processes, toxic, ie. carcinogenic factors released during rotting food. More specifically, the dietary fiber and the fiber-rich foods quenched and binds bile acids and polyphenols, and reduces the level of cholesterol in the digestive tract which may have a carcinogenic effect, in addition improves the intestinal flora is favorable to the fermentation of food, changing (balance) pH in the digestive tract and inhibits the conversion metabolites of bile acids in the toxic forms.

Anti-tumor effects are obtained by decreasing cell proliferation and apoptosis induction [31].

This dietary fiber can reduce the absorption of carbohydrates and prevent hyperinsulinemia. The consumption of fibers leads to a reduction in the risk of tumors of the digestive tract [32].

We selected and analyzed one significant study among many about the impact of alcohol consumption on the formation of tumors of the digestive tract, regarding presentation of specific data. The study included a large number of participants from different countries. As the methods used for the meta-analysis, and were treated as much as 22 as part of the studies to stop the digestive tract tumor [33]. The results show that alcohol consumption is a significant contribution to the formation of tumors of the digestive tract, and it is suggested that abstinence from alcohol consumption may be useful for the prevention of cancer. In February 2018, conducted research on intake of fried food and the formation of tumors of the digestive tract. Multivariate logistic regression analysis showed that among people who eat fried foods less than once a week, intake of fried foods was a risk factor for gastric cancer and precancerous lesions. The result of the study is the conclusion that the intake of fried food is a risk factor for gastric cancer and the formation of precancerous lesions. By reducing the entry of fried foods can be prevented the occurrence of gastric cancer and precancerous lesions [34]. Previous study demonstrate the presence of IgG antibodies estimated in blood that are associated and specific to patients

who have a bacterium *Helicobacter pylori*, as well as in patients suffering from tumors of the digestive tract and indicated that specific food can be most favorable to the production of these antibodies in the blood. Particular questionnaire was used to obtain general information about living with and it is bled, and which is sent for analysis, and there were observed IgG antibodies. The results showed that the consumption of red meat and dairy products increased selection of these antibodies in the blood, whereas the intake of fresh fruits significantly decreased their production in the blood [35].

## 4. Conclusions

In view of the large number of digestive tract tumors in the world [36] there are proven risk factors, which, in most cases, in conjunction with other factors (other external factors, and the internal factors, such as inheritance) increase the probability of occurrence of a specific group or a specific type of tumor. Prevention can be largely achieved by health-educational work with the general population, especially in populations with any genetic risk. This can involve continued education and motivation of individuals to quit smoking, alcohol abuse, to increase the level of physical activity and sweetened, spicy, artificial and thermally incorrectly processed food replace a healthy diet, rich in fiber, vitamins, minerals and natural ingredients.

## Conflicts of Interest

The authors declare that no any conflicts of interest for this paper.

ETICS: This paper is review manuscript and not include any patients data; paper is written according Helsinki Deklaration.

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