

Diet and Cancer Prevention

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While billions of dollars have been spent on initiatives like The War on Cancer, the incidence of cancer continues to increase, along with the death rate, for many forms of cancer. The National Cancer Institute estimated that 1,685,210 new cases of cancer would be diagnosed in the U.S. in 2016 and that approximately 595,690 people would die, which means an average of 1632 cancer deaths per day.¹ This is an increase from 2009, when it was estimated that 1,479,350 Americans would be diagnosed with cancer, and 562,340 would die, or an average of 1,500 cancer deaths per day.²

Some of the most significant contributors to cancer risk are diet and lifestyle choices, weight, and inflammation, all of which can be modified to reduce risk. The best option is to prevent cancer, and research shows that most cancers and deaths from cancer are preventable.³

One of the leading contributors to many types of cancer is being overweight. A review of over one thousand studies conducted by the International Agency for Research on Cancer showed that being overweight or obese increases the risk for at least 13 types of cancer.⁴ According to Dr. Graham Colditz, chairman of the research group, these 13 cancers represent 42% of all cancer diagnoses. Colditz says that weight status is an even more important factor than smoking in terms of cancer risk, and that obesity should be at the top of the list of risk factors to address for cancer prevention.⁵

While many factors contribute to weight gain and obesity, diet is the most important. It's easier to gain weight while eating foods that are high in calories and fat, like beef, cheese, and pastries. And it's easier to lose weight while eating a plant-based diet that includes more calorie-dilute foods like fruits, vegetables and starches.

Inflammation increases the risk of cancer and can also accelerate its progression. Cancers often develop at sites where infection, chronic irritation, or inflammation have occurred.⁶ Take colon cancer, for example. Over 35% of Americans develop polyps due to changes in the mucosal layer that protects the lining of the colon.⁷ A major cause of these changes is over-consumption of animal foods. Sulfur-containing amino acids in animal protein increase the production of hydrogen sulfide. This substance reduces mucus production, leaving the lining of the colon vulnerable to irritation, which in turn can lead to the formation of polyps.⁸ The more irritation, the bigger the polyps become, and the higher the risk they will develop into colon cancer.

Animal foods are also high in fat, and higher fat intake increases the production of bile acids, which also irritate the colon. A diet lower in fat and higher in fiber is protective because it reduces bile acid production and helps the body to eliminate bile acids more quickly.⁹

Many studies have shown a relationship between the consumption of animal foods and the risk of colon cancer in a dose-dependent manner – the more animal foods consumed, the higher the risk.^{10 11 12} On the other hand, research shows that eating a higher fiber diet reduces the risk of colon cancer,^{13 14 15} and that vegetarians are about 40% less likely to develop colon cancer as compared to meat eaters.^{16 17}

Another way in which high intake of animal foods contributes to increased inflammation and an increased risk of cancer is that animal foods contain concentrated amounts of arachidonic acid, which can increase inflammation levels through numerous pathways.¹⁸ Reducing intake of animal foods can significantly reduce inflammation levels and cancer risk.

Obesity contributes to inflammation because fat cells produce inflammatory cytokines and other similar molecules.¹⁹ Adopting a low-fat plant-based diet usually results in weight loss, which can, in turn reduce inflammation. And plant-based diets are high in fiber, which has been shown to reduce inflammation through interaction with gut bacteria.²⁰

Well-structured plant-based diets reduce the risk of cancer in several other ways too. In addition to fiber, plant foods contain concentrated amounts of antioxidants which can counteract the oxidative stress caused by poor diets, inflammation and infection.

The role of IGF-1 in cancer development has been known for some time. A 2002 study showed that higher plasma IGF-1 levels were associated with a higher incidence of prostate cancer, while higher levels of IGF-1 binding proteins were inversely associated.²¹ Other studies have shown a relationship between IGF-1 levels and breast, colorectal, lung, thyroid, bone, brain, and ovarian cancers.^{22 23 24 25 26} Lower levels of IGF-1 are associated with longer survival for cancer patients.²⁷

The good news is that IGF-1 levels are related to diet, and dietary changes can lower plasma levels. Higher protein intake is associated with higher plasma levels of IGF-1, and lower protein intake is associated with lower plasma levels, lower incidence of cancer, and lower mortality in people under age 65.²⁸ Other studies have confirmed the relationship between lowered protein intake and lower plasma IGF-1 levels,²⁹ particularly animal protein.³⁰ Milk and whey protein intake increase IGF-1 levels significantly,^{31 32} which explains why dairy intake is associated with so many types of cancer.

The idea that diet can prevent cancer is not a new one. In 1892, an article in *Scientific American* reported that “cancer is most frequent among those branches of the human race where carnivorous habits prevail.”³³ So why don’t more people eat optimal diets in order to reduce their risk of cancer, and why aren’t more doctors promoting plant-based nutrition for cancer prevention?

Medical training is one contributing factor. U.S. doctors receive almost no training in nutrition. According to a 2015 study, only 27% of U.S. medical schools offer the 25 hours of nutrition education currently recommended. The average is 19.6 hours of nutrition classes during four years of medical school, or less than 1% of total lecture hours. Most of this consists of biochemistry, not practical information about diets or food-related decision-making.³⁴

Another issue is that while many doctors recognize the need for nutrition education, there are few incentives for providing it. For example, the current licensure exam evaluates "biochemical knowledge and information relating to nutritional deficiencies," but does not test for knowledge or skills needed for discussing diet and lifestyle changes with patients. Board certifications, including those for internal medicine and cardiology, do not require demonstration of expertise in nutrition.

Another very important issue is the tendency of physicians to assume that patients are not interested in dietary change or working to improve their health. A common misconception is that people only want "quick fixes" for their health issues. But "quick fixes" – meaning drugs and procedures - are usually the only choices offered to patients. Most people are not told that diet and lifestyle habits can prevent or resolve their health issues, and there is no multi-billion-dollar media campaign promoting nutrition as an effective strategy for addressing health conditions.

It is clearly time for several changes, which include nutrition education as a part of medical training, and demonstration of nutrition knowledge as a criteria for licensure. Doctors should be taught how to have conversations with patients in which all options for prevention and treatment are discussed, including improved diet; and medical practices should include nutrition and lifestyle education for patients. These changes will require time, commitment, and resources. But our only hope for winning the war on cancer is to invest more effort in preventing it.

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