

FOODS THAT FIGHT WITH CANCER

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Abstract: Cancer is a common name for a group of more than 100 diseases. Though there are various kinds of cancer, all forms starts due to an abnormal and uncontrollable cell growth. Cancer has overtaken cardiovascular disease (CVD) as the leading cause of death in many parts of the world. It causes one in eight deaths worldwide. Global trends show that the majority of all cancer deaths occur in the low- and middle-income countries. Cancer can be partly prevented and many of these deaths can be avoided. Many studies have been conducted on the role of nutrition in cancer prevention. This has resulted in recommendations for cancer prevention. Far less research is conducted on nutrition and cancer progression, but the evidence is increasing that a healthy diet may also play a beneficial role for cancer survivors. This review article paper explores the cancer fighting foods.

Index Terms- *Cancer Risk, Healthy Diet, Cancer Prevention.*

Objectives:-

1. To study the prevention of cancer by foods.
2. To find out how can foods help fight with cancer.

INTRODUCTION:

Many foods contain beneficial compounds that could help decrease the growth of cancer. There are also several studies showing that a higher intake of certain foods could be associated with a lower risk of the disease. **Broccoli** contains sulforaphane, a plant compound found in cruciferous vegetables that may have potent anticancer properties. One test-tube study showed that sulforaphane reduced the size and number of breast cancer cells by up to 75%. Similarly, an animal study found that treating mice with sulforaphane helped kill off prostate cancer cells and reduced tumor volume by more than 50%. Several studies have found that eating more **carrots** is linked to a decreased risk of certain types of cancer. Try incorporating carrots into your diet as a healthy snack or delicious side dish just a few times per week to increase your intake and potentially reduce your risk of cancer. **Beans** are high in fiber, which some studies have found may help protect against colorectal cancer. An animal study also found that feeding rats black beans or navy beans and then inducing colon cancer blocked the development of cancer cells by up to 75%. **Berries** are high in anthocyanin, plant pigments that have antioxidant properties and may be associated with a reduced risk of cancer. In one human study, 25 people with colorectal cancer were treated with bilberry extract for seven days, which was found to reduce the growth of cancer cells by 7%. **Cinnamon** is well-known for its health benefits, including its ability to reduce blood sugar and ease inflammation. In addition, some test-tube and animal studies have found that cinnamon may help block the spread of cancer cells. Including 1/2–1 teaspoon (2–4 grams) of cinnamon in your diet per day may be beneficial in cancer prevention, and may come with other benefits as well, such as reduced blood sugar and decreased inflammation. Research has found that eating **nuts** may be linked to a lower risk of certain types of cancer. For instance, a study looked at the diets of 19,386 people and found that eating a greater amount of nuts was associated with a decreased risk of dying from cancer. Olive oil is loaded with health benefits, so it's no wonder it's one of the staples of the Mediterranean diet. Several studies have even found that a higher intake of olive oil may help protect against cancer. **Turmeric** is a spice well-known for its health promoting properties. Curcumin, its active ingredient, is a chemical with anti-inflammatory, antioxidant and even anticancer effects. In a test-tube study, curcumin was also found to decrease the spread of colon cancer cells by targeting a specific enzyme related to cancer growth. Curcumin has also been shown to be effective in slowing the growth of lung, breast and prostate cancer cells in other test-tube studies. Eating **citrus fruits** such as lemons, limes, grapefruits and oranges has been associated with a lower risk of cancer in some studies. One large study found that participants who ate a higher amount of citrus fruits had a lower risk of developing cancers of the digestive and upper respiratory tracts. High in fiber as well as heart-healthy fats, flaxseed can be a healthy addition to your diet. Some research has shown that it may even help decrease cancer growth and help kill off cancer cells. Try adding one tablespoon (10 grams) of ground **flaxseed** into your diet each day by mixing it into smoothies, sprinkling it

over cereal and yogurt, or adding it to your favorite baked goods. Lycopene is a compound found in **tomatoes** that is responsible for its vibrant red color as well as its anticancer properties. Several studies have found that an increased intake of lycopene and tomatoes could lead to a reduced risk of prostate cancer. To help increase your intake, include a serving or two of tomatoes in your diet each day by adding them to sandwiches, salads, sauces or pasta dishes. The active component in **garlic** is allicin, a compound that has been shown to kill off cancer cells in multiple test-tube studies. Several studies have found an association between garlic intake and a lower risk of certain types of cancer. Based on these findings, including 2–5 grams (approximately one clove) of fresh garlic into your diet per day can help you take advantage of its health-promoting properties. Some research suggests that including a few servings of **fish** in your diet each week may reduce your risk of cancer. In particular, fatty fish like salmon, mackerel and anchovies contain important nutrients such as vitamin D and omega-3 fatty acids that have been linked to a lower risk of cancer. Still, more research is needed to determine how fatty fish consumption may directly influence the risk of cancer in humans.

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No one food offers a golden ticket to fighting cancer, but a smart combination of eight “cancer-blocking” foods offers the strongest protection and contributes to overall health. Single foods like **green tea** and **tomatoes** are touted as cancer fighters, but the reality is it’s your overall eating habits that offer the strongest protection. The best strategy: a diet rich in plant-based foods like **vegetables, fruits, and whole grains**. Also good: eating more omega-3 fats like those found in **salmon** and **flax**, and cutting back on saturated fat, trans fat, and sugar. Cultivating the right kind of eating actually changes your “internal terrain” and makes it inhospitable to cancer, say experts at the Block Integrative Cancer Center. So start building your cancer-fighting arsenal with these eight cancer blockers. And keep in mind, the more fruits and vegetables on the plate, the better. This salad contains spinach, strawberries, and **almonds** - three of our cancer-fighting foods. As a family, broccoli, cauliflower, Brussels sprouts, and cabbage look nothing alike on the outside, but among cancer researchers, it’s what’s inside that counts. Each of these veggies are rich in isothiocyanates and indoles, compounds that put the double whammy on cancer by inhibiting enzymes that activate carcinogens and stimulating enzymes that deactivate them. Women take note: “No other group of foods has more scientific support for helping to prevent breast cancer,” says Jackie Glew, RD, Lead Clinical Nutritional Manager at the Block Center for Integrative Cancer Care in Skokie, Illinois. Most cooks think of garlic, onions, scallions, leeks, and chives as **flavor enhancers**, but they also have the potential to protect against stomach cancer according to the latest report on diet and cancer from the [American Institute of Cancer Research \(AICR\)](#). Animal research suggests the long list of cancer-protective compounds found in the allium family may slow the development of breast, colon, esophagus, and lung cancer, too. Look for recipes that feature garlic or onion as a main ingredient rather than as a subtle flavor enhancer to gain the most benefit because they’re good sources of Vitamin C and fiber, berries help to protect against esophageal and colorectal cancers. They’re also rich in powerful disease-fighting antioxidants called anthocyanin (a pigment that tints plants blue, red, and purple). Strawberries and raspberries carry high levels of ellagic acid and research suggest this compound tackles cancer on a couple of different fronts, slowing reproduction of cancer cells, deactivating some carcinogens, and acting as an antioxidant. Enjoy **berries** fresh or frozen (sans sugary syrup) for the most benefits. **Red lentils, kidney beans, and black-eyed peas** are chock full of cancer-fighting potential. Top on the list is folate, a B vitamin that reduces the risk of pancreatic cancer. Resistant starch and fiber are two more potential weapons, something gut bacteria use to produce compounds that protect colon cells. But the best news to date: Preliminary reports show people who routinely include beans, lentils, and dried peas at meals have a reduced risk of breast and prostate cancer. Low in saturated fat, most nuts and seeds are already a good addition to any plant-based diet, but two family members stand out, walnuts and flaxseed. Eating small amounts of **walnuts** can cut the risk of breast cancer in half according to a recent study. Preliminary reports also suggest a role for these nuts in blocking colorectal cancers. As for **flaxseeds**, these have cancer-fighting potential due to their fiber, omega-3 fats, and lignans (beneficial plant compound). **Spinach, kale, mustard greens, Swiss chard**, and even **romaine lettuce** are high on the radar of cancer researchers for a lot of reasons. They’re rich in nutrients that block cancer plus they harbor a wide range of disease-fighting chemicals. Research has found that these foods may protect against cancers of the mouth and larynx and may also stunt the growth of breast, skin, stomach, and lung cancer cells. But hand over the biggest prize to Popeye’s favorite veggie, spinach. Studies show compounds in spinach can block certain carcinogens from other foods and may provide potential anti-cancer properties that can be used in future drugs. When pooling the results of lots of different studies on diet and fish, researchers discovered that people who eat fish more often have a 12% lower risk of developing colorectal cancer. Eating higher amounts of fish and poultry (and less processed meat) is also linked with reduced risk of ovarian cancer. Experts have yet to tease out the beneficial fish compounds, but many suspect it could be the omega-3 fatty acids found in fish like salmon and sardines. In the meantime, consider all types of fish as healthy choices for a cancer-fighting diet.

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The majority of nutrients that have anti-inflammatory, antioxidant, and detox properties are found in plants. Plant foods—like fruits and vegetables—contain macronutrients (complex carbohydrates, proteins, fats, and fiber,) and micronutrients (vitamins and minerals). But they are also packed with compounds known as **phytonutrients**. Simply put, phytonutrients are active compounds that benefit humans, particularly in the area of cancer prevention. Phytonutrients can lower the risk of cancer, the side effects of cancer treatments, and reduce other health risks and problems. Phytonutrients provide plants with sensory characteristics such as their color, flavor, and smell, but they also protect plants from damage—this is why they're so powerful. Most cancer-fighting foods have more than one phytonutrient, so their benefits are not limited to one area among the benefits of anti-inflammatory, antioxidant, or detoxifying. ⁽³⁾

Tea is chock-full of antioxidants called catechins, which lab studies have found may stop growth of cancer cells and reduce the size of cancerous tumors. It may fight Colon, liver, breast, prostate, lung, skin, bladder, stomach and pancreatic. Sip hot or cold **green tea** instead of coffee (it has less caffeine and no calories if you go sugarless). Black tea offers benefits, but green tea has three times more catechins, according to the American Institute of Cancer Research. ⁽⁴⁾

A daily **red apple** protects against human liver, colon and breast cancer. The European Prospective Investigation into Cancer and Nutrition (EPIC) study demonstrated that increasing fruits and vegetables by the equivalent of one small apple a day could prevent more than 300,000 cases of cancer worldwide each year (*European Journal of Cancer* 46, Sept. 2010). Eat the apple skin too! Researchers at Cornell University found that triterpenoid compounds in apple peels contribute to their anti-cancer activity (*Journal of Agricultural and Food Chemistry* 55, June 2007).

Vitamin D supplements, if taken for at least three years, could add years to the lives of cancer patients, a study has found. Vitamin D had a significant effect on lowering the risk of death among those with cancer. The researchers looked at data related to disease prevention from more than 79,000 patients in multiple studies that randomly compared the use of vitamin D to a placebo over at least a three-year period.

You are what you eat. This proverbial saying means that in order to be healthy and fit you need to eat good food. It is said to be used first by Jean Anthelme Brillat-Savarin, a French lawyer and gastronome in his 1826 book *The Physiology of Taste*. Little did he know that his phrase would be confirmed by 21st century clinical trials. More specifically, in ASCO 2019 it was announced that **low-fat diet reduces the risk for breast cancer death** among postmenopausal women. These results were taken from the Women's Health Initiative Dietary Modification Trial. It was a randomized controlled trial to test the hypothesis that low fat diet can reduce the risk of developing breast and colorectal cancer as well as coronary heart disease in postmenopausal women.

When you see a list of "cancer-fighting foods", they are often plant foods loaded with phytochemicals, also called phytonutrients. Phytochemicals are compounds found in plants that can help prevent chronic diseases like cancer. The list is usually topped with berries, broccoli, tomatoes, walnuts, grapes and other vegetables, fruits and nuts. "If you look at the typical foods that reduce cancer risk, it's pretty much all plant foods that contain phytochemicals," says Wohlford. But she cautions shoppers not to focus on a specific list of "cancer-fighting" foods to the exclusion of other healthy foods in the produce section. "Keep in mind that there are more than 4,000 phytochemicals that have been discovered and researched," she says. "There's not any one super-food that contains all of them. They all offer different functions and benefits." A good way to add variety to your cancer-fighting food list is to make sure you include a variety of colors. You can get the most protection by eating a wide variety of plant foods.

Eating a balanced diet is vital for good health and wellbeing. Food provides our bodies with the energy, protein, essential fats, vitamins and minerals to live, grow and function properly. We need a wide variety of different foods to provide the right amounts of nutrients for good health. Enjoyment of a healthy diet can also be one of the great cultural pleasures of life. However, unhealthy eating habits have contributed to the obesity epidemic in the United States: about one-third of U.S. adults (33.8 percent) are obese and approximately 17 percent (or 12.5 million) of children and adolescents aged 2-19 years are obese. Even for people at a healthy weight, a poor diet is associated with major health risks that can cause illness and even death. These include certain types of cancer, heart disease, high blood pressure, Type 2 diabetes, and osteoporosis. By making smart food choices, you can help protect yourself from these health problems.

If your treatment has caused side effects like nausea, taste changes, or mouth sores, you probably have already started your own mental list of foods you'd much rather steer clear of. However, there are some foods that no matter how good they sound are probably best avoided due to the risk of foodborne illness, aka food poisoning. Because some treatments can weaken your immune system until at least a few weeks after they've ended (longer if you had a stem cell/bone marrow transplant), food poisoning is not something to tempt. The results of developing a foodborne illness can be serious. Eating raw or undercooked foods is a common cause of food poisoning. Proper cooking destroys bacteria, but they can start to grow on cooked food if it is left out or in the refrigerator for too long. Food also can become contaminated when someone infected with a virus or other "bug" handles it. Paying attention to food safety rules and being extra careful when handling, preparing, and storing food is definitely important. However, some people who are receiving or have recently finished cancer treatment should avoid some foods entirely, even if they may have eaten them with no problems in the past.

CONCLUSION:

Our body has trillions of cells. Generally cells grow, divide to make new cells and die. Cells become Cancer Cells due to DNA damage (Vital chemical present cell's nucleus) which is why cells do not die and grow abnormally in any part of the body to form new cancer cells. Major causes of Cancer are Oxidative Stress, UV rays exposure, Inherited abnormal DNA, Sun exposure, Alcohol & Smoking, Long term effect of chemical cosmetics. Abnormal cells growth in any part of body is called cancer. There are many causes for uncontrolled growth of cells, one of which is our unhealthy diet. A healthy diet can prevent to develop cancer in the body. Many foods are associated with a lower risk of cancer development like- Broccoli, Carrots, Beans, Berries, cinnamon, Nuts (almonds and walnuts), Turmeric, Citrus fruits, Flaxseeds, Tomatoes, Fish (Salmon and Flax), Green tea, Whole grains, Flavor enhancers (garlic, onion, scallions, leeks and chives), Red lentils, Kidney beans, Black-eyed peas, Spinach, Kale, Mustard greens, Swiss chard, Romaine lettuce, Red apple and Phytonutrients containing foods (fruits and vegetables). Researches shows that vitamin D supplements and low fat diet reduces the risk of death due to cancer. Plant foods are good for cancer prevention because plant foods containing phytochemical. A fresh, healthy and balanced diet should be taken after cancer and prevention of cancer.

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REFERENCES:

1. Rachael link, MS, RD, "13 Foods that could lower risk of cancer ", Health line, December 18, 2017.
2. Maureen Callahan, "Cancer –fighting foods", Eating Smart, June 23, 2014.
3. Melania Lizano, "07 top cancer – fighting foods" Perfect health.
4. American Institute of cancer research, "10 foods that help fight cancer" Everyday Health, November 14, 2017.
5. Susan Silberstein, "How to prevent cancer with 5 cancer- fighting foods", Beat cancer.org, December 20, 2013.
6. PTI Washington, "Vitamin D may help cancer patients live longer", Science, June 05, 2019.
7. El, "Breast cancer diet- What you put on your plate matters", Exposecancer.com, July 08, 2019.
8. Danielle Underferth, "36 foods that may help lower your cancer risk", MD Anderson cancer center, March 2019.
9. Prof. Keith Staff-Mumby, "The cancer diet", Cancer tutor team, May 23, 2019.
10. Amber Bauer, ASCO Staff, "Foods to avoid during cancer treatment", Cancer.Net, April 29, 2014.