25 Evidence-Based

ANTI-CANCER STRATEGIES

by HEALTHMEANS

If the answer to good health is prevention, then prevention is power. But prevention without a solid knowledge base is like walking, blindfolded through the woods with a stick. It doesn't get you very far, or in the direction you truly need to go.

At HealthMeans, we exist to empower your mind and body to achieve better health through clear advice and trusted guidance. Our vast collection of expert talks, eBooks and programs can help you continue moving down your path of health and wellness—bridging the gap between where you are now and where you truly want to be.

Today, we're talking about cancer—and the ability to prevent it through evidence-based, anti-cancer strategies. We invite you to join us on this journey. Let's go.

And if you like what you've read here, be sure to explore HealthMeans for 1000s of additional health talks, eBooks and programs!

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CANCER IS SCARY. IT CAN SNEAK UP ON US, MAKING US SICK, ROBBING US OF OUR LIVELIHOOD, AND POTENTIALLY EVEN KILLING US. BUT IT DOESN'T HAVE TO BE THIS WAY.

Although cancer is one of the leading causes of death worldwide [1], it doesn't need to be. That's because cancer is what people refer to as a "lifestyle disease". Studies suggest that 30–40% of all cancers can be prevented by changing our lifestyle and dietary habits [2]. That means that we have the power to stop cancer in its tracks, improving our health and well-being, and potentially extending the length of our lives. That's huge! That puts the power back in our hands.

So what, exactly, should we do?

WHAT ARE THE BEST ANTI-CANCER FOODS?

AND WHAT ARE THE MOST BENEFICIAL ANTI-CANCER HABITS?

These are the questions we'll answer in this eBook. With this information, you'll feel more empowered to take back control over your life and reduce your cancer risk.

GETTING STARTED

One research-supported strategy for improving our health is to use "reverse engineering" [3]. We do this by working backwards—first looking at the factors that cause cancer, then looking at the things that cause those factors, and so on. By building our anti-cancer lifestyle in this way, we can be more confident that the actions we take have real positive impacts and reduce our cancer risk. We're not just guessing; we're using the science to guide us.

So before we begin talking about anti-cancer strategies, let's talk briefly about the main causes cancer. The research suggests that cancer risk is split into three roughly equal-sized buckets. These three buckets account for the majority of cancers [4].

The majority of this eBook will focus on diet and inflammation (we're just going to assume you already know that smoking causes cancer and leave it at that.) And at the end, we'll devote a little time to talking about other potential causes of cancer. By the end of the eBook, you'll know exactly what to do to create an anti-cancer diet and lifestyle. Ready to get started?

HERE ARE 25 EVIDENCE-BASED STRATEGIES YOU CAN START USING TODAY TO DECREASE YOUR CANCER RISK.

1. EAT MORE FRUITS AND VEGGIES

Probably the simplest thing you can do to decrease your cancer risk is to eat more fruits and veggies. In fact people who eat the least fruits and veggies have been shown to be twice as likely to get most types of cancer (lung, larynx, oral cavity, esophagus, stomach, colon and rectum, bladder, pancreas, cervix, and ovary) as those who eat the most fruits and veggies [5].

2. FILL HALF YOUR PLATE WITH VEGGIES

One way to get more veggies is to make sure that veggies fill half of your plate [6]. For example, your meals could include a big salad with a variety of veggies like cucumbers, tomatoes, carrots, and red cabbage. For dinner, you could include cooked veggies such as green beans, carrots, asparagus, or greens. And you could eat snacks like pickled cucumbers, coleslaw, or veggie chips and salsa.

3. AIM TO EAT A RAINBOW OF FOODS

The minimum recommendation is to eat at least 2 servings of fruit and 3 servings of vegetables per day, but it seems that the more vegetables you eat the better. And, the broader range of veggies you eat the better [7]. So strive to eat a rainbow of veggies and fruits to ensure you're getting the full range of nutrients and phytochemicals that help prevent a variety of different cancers.

4. BE STRATEGIC WITH YOUR VEGGIES AND FRUITS

If you know that you're at risk for a particular type of cancer—for example if you have a family history of a particular type of cancer, have genetic pre-cursors for a particular type of cancer, or have a cancer diagnosis already, it may be beneficial to prioritize certain fruits and veggies. For example, if your grandmother died of breast cancer and you have a gene that puts you at risk for female cancers. So you would benefit from prioritizing foods that decrease the risk of breast cancer.

5. EAT FOODS HIGH IN CAROTENES

Increased consumption of foods high in carotenes have been linked to lower risk of breast cancer [8]. Foods high in carotenes include orange foods.

CAROTENE-RICH FOODS:

- Carrots
- Sweet potatoes
- Cantaloupe
- Peaches
- Apricots
- Orange peppers

TO PROTECT AGAINST CANCER (ESPECIALLY BREAST CANCER) BE SURE TO EAT LOTS OF ORANGE FOODS.

6. EAT FOODS HIGH IN LYCOPENE

Reduced prostate cancer risk has been linked with greater intake of lycopene-rich foods [8]. Lycopene appears to be anti-carcinogenic and especially potent at preventing the cell growth of various human cancer cells. It also prevents inflammation induced by cigarette smoke [7]. Overall, the research suggests that lycopene is a great anti-cancer compound. To get more lycopene, eat more red foods.

LYCOPENE-RICH FOODS:

- Tomatoes
- Red bell peppers
- Persimmons
- Red cabbage
- Pink grapefruit
- Watermelon

Tomatoes, especially, are chocked full of lycopene. There are so many ways to eat tomatoes. Whether you prefer a chunky tomato salsa, a rich tomato sauce, or even tomato juice, try to get some tomatoes into your diet, especially if you're a man.

7. EAT FOODS HIGH IN LUTEIN

Lutein is derived from the Latin word for yellow. So when looking to eat more Lutein, a simple trick is to look for yellow foods. But Lutein actually hides in a lot of green foods too. In fact, Lutein is especially concentrated in leafy green vegetables [7].

LUTEIN-RICH FOODS:

- Yellow peppers
- Yellow squash
- Sweet corn
- Maize
- Egg yolk
- Kale
- Spinach
- Lettuce
- Peas
- Broccoli
- Kiwi
- Green grapes
- Zucchini

Lutein is an anti-cancer beast. It is an antioxidant, free radical scavenger that may also stimulate genes that help protect the body against inflammation [7]. One study found Lutein combined with zeaxanthin (which is also in dark green foods) reduced the risk of breast cancer by 53% [9]. So get in those yellow (and dark green) foods to get some Lutein.

8. EAT FOODS WITH ISOTHIOCYANATES

Isothiocyanates help the body with apoptosis (programmed cell death), autophagy (the body's way of cleaning out damaged cells), and hormone expression. Given that Isothiocyanates function in a different way than many of the other antioxidants, be sure to include at least some of these in addition to your other anti-cancer foods.

ISOTHIOCYANATES FOODS:

- Broccoli
- Cauliflower
- Kale
- Brussels sprouts
- Cabbage
- Watermelon

Unfortunately, cooking these foods greatly minimizes their anticancer benefit. For this reason, it's key to eat raw cruciferous veggies, perhaps by regularly eating coleslaw or broccoli sprouts. Broccoli sprouts in particular, which are high in sulforaphane, a form of Isothiocyanates, may be especially beneficial [7].

9. CONSUME FLAVONOIDS

Research shows that flavonoids can contribute to the prevention and treatment of many types of cancer [7]. There may be a number of different reasons for this including the role flavonoids have in apoptosis of malignant cells [10].

DIETARY SOURCES OF FLAVONOIDS INCLUDE:

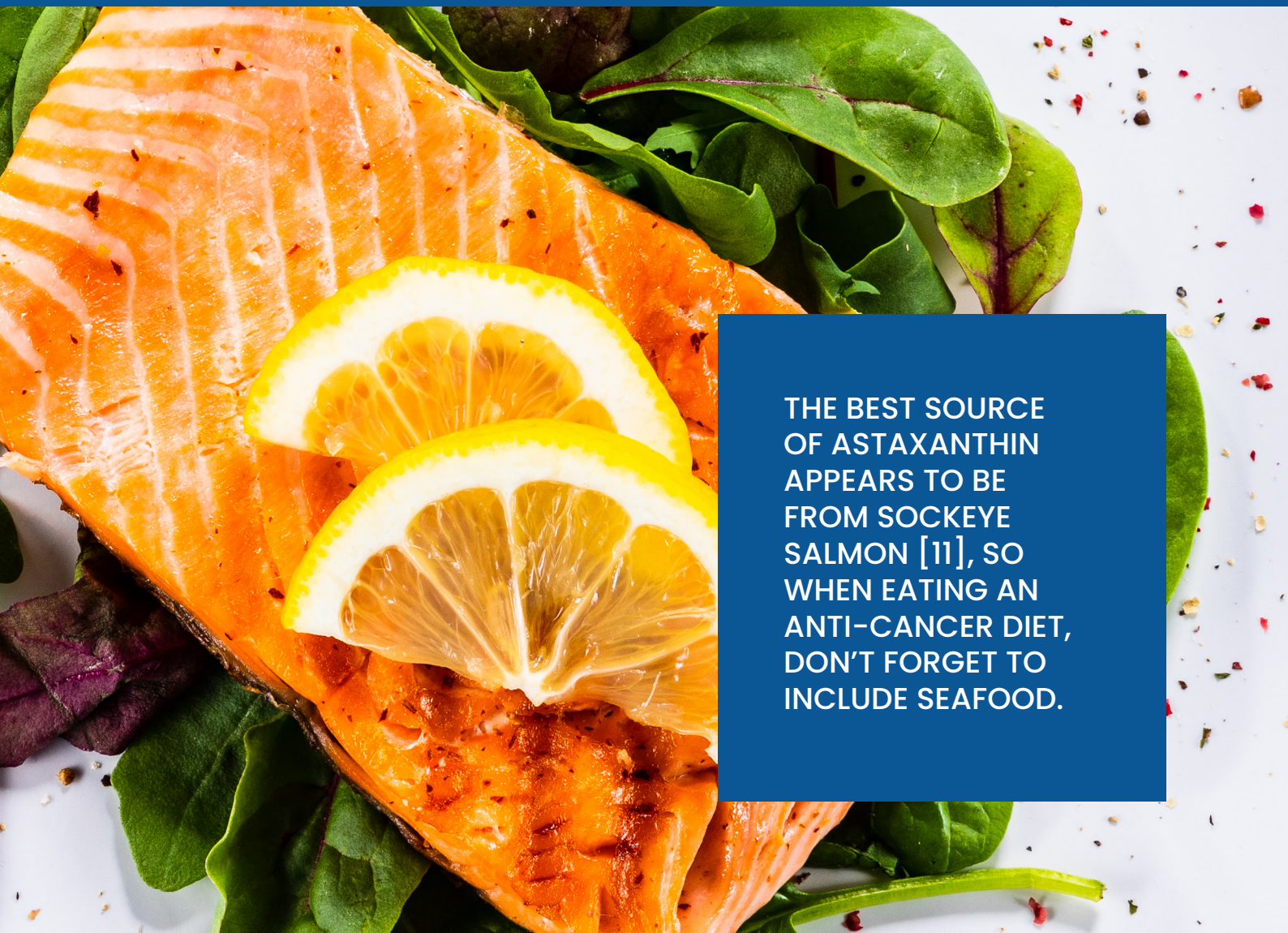
- Green tea
- Citrus fruit
- Citrus fruit juices
- Berries
- Apples
- Legumes

10. EAT FOODS HIGH IN ASTAXANTHIN

Astaxanthin is notable for it's antioxidant and anti-inflammatory powers as well as its ability to scavenge free radicals (molecules that can damage cells). Out of eight carotenoids tested in one rat study, astaxanthin was found to be the most effective [7].

ASTAXANTHIN-RICH FOODS:

- Salmon
- Trout
- Krill
- Shrimp
- Crayfish
- Lobster
- Crab
- Algae



THE BEST SOURCE OF ASTAXANTHIN APPEARS TO BE FROM SOCKEYE SALMON [11], SO WHEN EATING AN ANTI-CANCER DIET, DON'T FORGET TO INCLUDE SEAFOOD.

11. EAT FOODS WITH CANTHAXANTHIN

Canthaxanthin is an antioxidant and free radical scavenger with an additional benefit. It appears to activate enzymes that clear the body of xenobiotics (chemicals compounds like drugs, pesticides, or other carcinogens that can increase cancer risk [12]). Canthaxanthin is mostly found in mushrooms and fish.

12. EAT ALLIUM VEGETABLES

Intake of allium vegetables (garlic, onions) that contain high levels of sulfur appear to be associated with lower gastrointestinal cancer risk [8]. In addition, allicin, a major component of garlic, can inhibit the growth of cancer cells [13]. And good news; it's easy to eat more alliums. Just add a little garlic and onions to all your veggie, meat, and pasta dishes.

To more easily apply this information in your daily life, use this bingo card as your shopping list. Get bingo by eating one food from each column each day. Or if you're a real go-getter, aim to eat one food per column in every meal.

BINGO

CAROTENES	LYCOPENE	LUTEIN	ISOTHIO-CYANATES	FLAVONOIDS
Carrots	Tomatoes	Corn	Broccoli, broccoli sprouts	Green or black tea
Sweet potatoes	Red bell peppers	Summer squash	Cauliflower	Berries
Cantaloupe	Persimmons	Greens: kale, spinach, and lettuce	Cabbage, bok choi	Apples
Peaches, apricots	Asparagus	Eggs (with yolk)	Broccoli	Legumes
Plums	Grapefruit	Peas	Brussels sprouts	Oranges
Winter squash	Watermelon	Kiwi, grapes	Radish, Daikon	Lemon, Lime

OTHER IMPORTANT ANTI-CANCER FOODS (TRY TO EAT THESE EVERYDAY)

- Seafood (e.g., salmon, trout, shrimp, crayfish, lobster, crab)
- Garlic or onions

13. INCREASE GLUTATHIONE

Xenobiotics (for example from pesticides or cigarette smoke) increase cancer risk. So consuming substances that help our bodies metabolize xenobiotics can be protective against cancer. In our bodies, this is primarily the role of glutathione, an antioxidant produced by our cells [14].

Taking a glutathione supplement doesn't seem to have any effect. Luckily, there are other ways to increase glutathione levels. For example, consuming selenium [15], vitamin C [16], milk thistle supplements [17], and turmeric have all been shown to be effective strategies [18]. N-acetylcysteine (NAC), a precursor to glutathione, can also be useful for those who have a difficult time with glutathione (for example, those with genetics that impair glutathione production). NAC has been shown to aid cancer prevention due to it's ability to aid the metabolism of xenobiotics [19].

14. EAT PROTECTIVE COMPOUNDS

In addition to eating specific vegetables, it can be helpful to eat foods high in compounds such as vitamin E, vitamin C, and the mineral selenium.

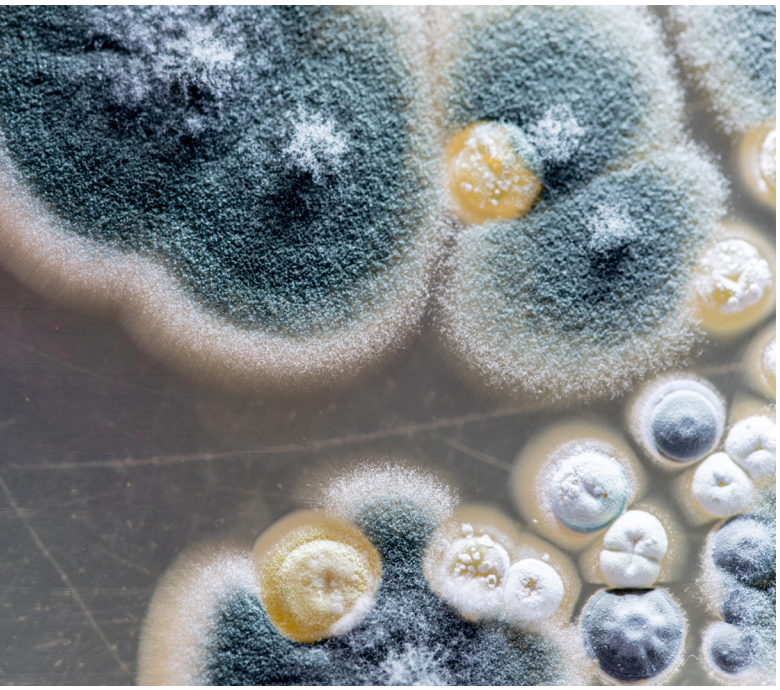
These key compounds appear to prevent transformation of normal cells into cancer cells. In one study Vitamin E reduced the risk of prostate cancer by 32%. And Selenium has been shown to reduce the risk of prostate cancer and lung cancer [8]. However, some evidence suggests that supplementing with these compounds may not significantly affect cancer risk [20], so as is generally true, it seems best to just eat nutritious foods.

15. EAT MORE PROBIOTIC FOODS

Probiotics such as L. acidophilus, Bifidobacterium longum, and L. casei have been shown in studies to be linked to lower cancer risk [21]. Probiotics are perhaps most useful in reducing colorectal cancer risk, as probiotics are helpful in improving mucosa and reducing bacteria related inflammation in the colon.

The most benefit from probiotics is gained by eating them in their natural state—namely by lacto fermenting vegetables, fruits, or dairy products. You can buy naturally lacto-fermented products like kimchi, kefir, and some yogurts in most health food stores, but you can also make your own at home cheaply and easily.

16. ADDRESS BACTERIAL, PARASITIC AND VIRAL INFECTIONS



When we have bad bacteria, parasites, viruses, or mold exposure, we have a war going on inside us. The body does the best it can to attack, but there will inevitably be some collateral damage. The longer we battle these infections the more damage is done, not just to the infection but also to our cells and our DNA. Identifying and treating these infections is key to preventing inflammation. And, this is another reason why antioxidants from veggies and fruits are an essential part of an anti-cancer lifestyle [4].

17. EAT FEWER CALORIES

Research clearly shows that restriction of calories (especially protein) reduces cancer risk [22]. In fact, some suggest that calorie restriction is one of the most potent cancer-prevention strategies available [23]. Although it's not clear exactly why less calories equates to less cancer, some suggest that it is due to changes in hormones, diet, activity levels, and/or obesity risk. Regardless, it is clear that calorie restriction increases the lifespan. But if you're eating a calorie-restricted diet, just be sure that you're getting all the nutrients you need (if you're eating the rainbow, as suggested earlier, you're on the right track).

18. TRY INTERMITTENT FASTING

Intermittent fasting is a short fasting period of about 16 hours and usually less than 1 day. One of the easiest ways to do an intermittent fast is to eat an early dinner and skip breakfast the next day. For example, if you finish eating dinner and any other deserts or snacks by 8PM, and you don't eat again until noon the next day, you've fasted for 16 hours—you've done an intermittent fast. Studies on intermittent fasting have shown that it facilities DNA repair and improves response to chemotherapy. So intermittent fasting may be a useful tool for both preventing and treating cancer [24].

19. EAT LESS SUGAR

An anti-cancer diet clearly includes mostly veggies, some fruits, and little to no added sugar, as sugar has been linked to cancer across a numerous studies [25, 26]. Since cancer cells depend on sugar more than normal cells, some studies have explored whether a low carb diet (which limits foods that digest as sugar such as grains and fruits) is beneficial. Indeed, a low carb diet has been shown to reduce tumor growth. But hold on. Other studies have found that a high-fat/high protein diet can promote cancer. So the key thing to remember here is to limit sugar. The jury is still out on how much carbs, protein, and fat to eat.

20. CONSUME LESS VEGETABLE OIL

In addition to eating specific foods, creating an effective anti-cancer diet should include a focus on how food is prepared. Of particular note, meals in the standard American diet are often prepared with polyunsaturated fatty acids (also known as PUFAs), which have been linked to cancer, especially among people with genes that impair PUFA metabolism [27]. To reduce your cancer risk from PUFAs, avoid vegetable and seed oils including canola oil, corn oil, soybean oil, vegetable oil, sesame oil, peanut oil, and margarine. Instead use fruit oils including olive oil, coconut oil, and avocado oil.

21. AVOID XENOESTROGENS

Xenoestrogens are a type of hormone disrupter that has estrogen-like effects. Xenoestrogen exposure has been linked to cancers of the reproductive system, breast, lung, kidney, pancreas, and brain. Xenoestrogens include chemicals like polycyclic aromatic hydrocarbons (PAH), pesticides, some drugs, mycotoxins, bisphenol A (BPA; a plastics additive), and many others. Xenoestrogens are also present in smoke (from cigarettes or fire), water, and cosmetic products [28].

After reading this list, it may not surprise you that we are all frequently exposed to xenoestrogens from our food and environment. That's why when creating an anti-cancer lifestyle, it's essential to limit xenoestrogen exposure—for example, by investing in a good water filter, buying organic produce, and avoiding cosmetics or bath products with phthalates and other cancer-causing substances.

22. LIMIT USE OF PLASTICS

Bisphenol A (BPA), one type of xenoestrogen, is found in tons of products including reusable water bottles, reusable food containers, the lining on the insides of food cans, and even clothing [29, 30]. In fact, one study found that 82% of one sample of baby clothing items had BPA [30]. BPA is so pervasive that it was detected in the urine of 92% of people in one sample [29].

Because we don't always know where BPA is hiding, it can be helpful to just avoid plastic altogether. Develop the habit of buying natural products made of substances like glass, stainless steel, and organic cotton. This seems especially important for products that touch our food or bodies. For example, we can get a glass water bottle instead of buying plastic water bottles. We can invest in a set of glass storage containers to store leftovers and snacks. We can stop eating canned food altogether. And we can buy clothing made from natural, organic fibers (not plastics). These strategies can help us reduce the amount of BPA we are exposed to.

23. REDUCE INDOOR POLLUTANTS

There are a number of hidden chemicals lurking in our homes that increase indoor pollution and cancer risk. For example, air fresheners, deodorizers (e.g., for the toilet bowl), and moth repellents tend to include p-dichlorobenzene (p-DCB), which increases cancer risk [31]. So toss anything unnaturally scented and instead switch to using plant essential oils like lavender, rosemary, and lemon. And be sure to open the windows to air out your home whenever possible.

24. REDUCE CHEMICAL EXPOSURE AT HOME

Another cancer risk comes from chloroform, which can come from volatilization of chlorine [31]. To reduce this risk, you can get a whole house water filtration system, but if that's not possible, other measures can be taken as well. Research suggests that you can lower your exposure by opting not to wash dishes by hand [31] and by being sure not to wash your clothes with chlorine bleach [32].

25. AVOID SUNBURNS

Exposure to the sun is the major cause of skin cancer. Getting sun burnt during the early decades of life seems to be the greatest risk, particularly for fair skinned individuals. So wear a hat and long shirt or use sunscreen if you're going to be out in the sun for a significant amount of time [4].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REFERENCES

1. Arends, J., et al., *ESPEN guidelines on nutrition in cancer patients.* Clinical nutrition, 2017. 36(1): p. 11-48.
2. Donaldson, M.S., *Nutrition and cancer: a review of the evidence for an anti-cancer diet.* Nutrition journal, 2004. 3(1): p. 19.
3. Haritatos, J., *Reverse Engineering Health: How "working backwards" from health outcomes can lead to more effective health interventions.* Oct 24th, 2019, Hopelab.
4. Ames, B.N., L.S. Gold, and W.C. Willett, *The causes and prevention of cancer.* Proceedings of the National Academy of Sciences, 1995. 92(12): p. 5258-5265.
5. Steinmetz, K.A. and J.D. Potter, *Vegetables, fruit, and cancer.* I. Epidemiology. Cancer Causes & Control, 1991. 2(5): p. 325-357.
6. Out, A.H.E., *Make Half Your Plate Fruits & Vegetables.* US Department of Agriculture, 2011.
7. Aghajanpour, M., et al., *Functional foods and their role in cancer prevention and health promotion: a comprehensive review.* American journal of cancer research, 2017. 7(4): p. 740.
8. Borek, C., *Dietary antioxidants and human cancer.* Integrative cancer therapies, 2004. 3(4): p. 333-341.
9. Freudenheim, J.L., et al., *Premenopausal breast cancer risk and intake of vegetables, fruits, and related nutrients.* JNCI: Journal of the National Cancer Institute, 1996. 88(6): p. 340-348.
10. Rao, C.V., H.L. Newmark, and B.S. Reddy, *Chemopreventive effect of farnesol and lanosterol on colon carcinogenesis.* Cancer detection and prevention, 2002. 26(6): p. 419-425.
11. Ambati, R.R., et al., *Astaxanthin: sources, extraction, stability, biological activities and its commercial applications—a review.* Marine drugs, 2014. 12(1): p. 128-152.
12. Williams, J.A. and D.H. Phillips, *Mammary expression of xenobiotic metabolizing enzymes and their potential role in breast cancer.* Cancer research, 2000. 60(17): p. 4667-4677.
13. Oommen, S., et al., *Allicin (from garlic) induces caspase-mediated apoptosis in cancer cells.* European journal of pharmacology, 2004. 485(1-3): p. 97-103.
14. Traverso, N., et al., *Role of glutathione in cancer progression and chemoresistance.* Oxidative medicine and cellular longevity, 2013. 2013.
15. Bermingham, E.N., et al., *Selenium-enriched foods are more effective at increasing glutathione peroxidase (GPx) activity compared with selenomethionine: A meta-analysis.* Nutrients, 2014. 6(10): p. 4002-4031.
16. Lenton, K.J., et al., *Vitamin C augments lymphocyte glutathione in subjects with ascorbate deficiency.* The American journal of clinical nutrition, 2003. 77(1): p. 189-195.
17. Kiruthiga, P., S.K. Pandian, and K.P. Devi, *Silymarin protects PBMC against B (a) P induced toxicity by replenishing redox status and modulating glutathione metabolizing enzymes—an in vitro study.* Toxicology and applied pharmacology, 2010. 247(2): p. 116-128.

18. Hanif, R., et al., *Curcumin, a natural plant phenolic food additive, inhibits cell proliferation and induces cell cycle changes in colon adenocarcinoma cell lines by a prostaglandin-independent pathway.* Journal of Laboratory and Clinical Medicine, 1997. 130(6): p. 576-584.
19. van Zandwijk, N., *N-acetylcysteine for lung cancer prevention.* Chest, 1995. 107(5): p. 1437-1441.
20. Lippman, S.M., et al., *Effect of selenium and vitamin E on risk of prostate cancer and other cancers: the Selenium and Vitamin E Cancer Prevention Trial* (SELECT). Jama, 2009. 301(1): p. 39-51.
21. Parvez, S., et al., *Probiotics and their fermented food products are beneficial for health.* Journal of applied microbiology, 2006. 100(6): p. 1171-1185.
22. Hocman, G., *Prevention of cancer: restriction of nutritional energy intake (joules).* Comparative Biochemistry and Physiology Part A: Physiology, 1988. 91(2): p. 209-220.
23. Hursting, S.D., et al., *Calorie restriction, aging, and cancer prevention: mechanisms of action and applicability to humans.* Annual review of medicine, 2003. 54(1): p. 131-152.
24. Antunes, F., et al., *Autophagy and intermittent fasting: the connection for cancer therapy?* Clinics, 2018. 73.
25. Bostick, R.M., et al., *Sugar, meat, and fat intake, and non-dietary risk factors for colon cancer incidence in Iowa women (United States).* Cancer Causes & Control, 1994. 5(1): p. 38-52.
26. Slattery, M.L., et al., *Dietary sugar and colon cancer.* Cancer Epidemiology and Prevention Biomarkers, 1997. 6(9): p. 677-685.
27. Azrad, M., C.E. Turgeon, and W. Demark-Wahnefried, *Current evidence linking polyunsaturated fatty acids with cancer risk and progression.* Frontiers in oncology, 2013. 3: p. 224.
28. Fucic, A., et al., *Environmental exposure to xenoestrogens and oestrogen related cancers: reproductive system, breast, lung, kidney, pancreas, and brain.* Environmental Health, 2012. 11(1): p. 1-9.
29. Soto, A.M. and C. Sonnenschein, *Environmental causes of cancer: endocrine disruptors as carcinogens.* Nature Reviews Endocrinology, 2010. 6(7): p. 363-370.
30. Xue, J., W. Liu, and K. Kannan, *Bisphenols, benzophenones, and bisphenol A diglycidyl ethers in textiles and infant clothing.* Environmental Science & Technology, 2017. 51(9): p. 5279-5286.
31. Hun, D.E., et al., *Cancer risk disparities between Hispanic and non-Hispanic white populations: the role of exposure to indoor air pollution.* Environmental Health Perspectives, 2009. 117(12): p. 1925-1931.
32. Shepherd, J.L., R.L. Corsi, and J. Kemp, *Chloroform in indoor air and wastewater: The role of residential washing machines.* Journal of the Air & Waste Management Association, 1996. 46(7): p. 631-642.


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