

100 SCIENCE-SUPPORTED WAYS TO REDUCE YOUR RISK OF CANCER



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INTRODUCTION

In Dec. 2015 the prestigious scientific journal *Nature* rocked the world with the publication of a now-famous study concluding that most cancers (between 70% and 90%) are triggered by external factors - including smoking, drinking, dietary choices, sun exposure and exposure to cancer-causing chemicals. [1]

This conclusion challenged accepted ideas about the origins of cancer and overturned the previously-held idea that "bad luck" and genetics played a more prominent role in cancer formation. The researchers now think that the "bad luck" theory of random cell mutations accounts for just 10 to 30% of cancer risk. [2][3]

Genetics had long been regarded as the most significant cause of cancer. However the Nature study published in 2015 by Wu, et. al. found that intrinsic factors like family history could not completely account for cancer development and that 70 to 90 percent of the risk was unrelated to genetics. Dr. Hannun, one of the researchers, likened cancer risk factors to a revolver with six chambers – genetics account for one bullet; your **lifestyle choices and environmental exposure** make up the rest of the bullets that will fill the last five chambers...

* * *

When the *International Agency for Research on Cancer* released the World Cancer Report in 2014, they estimated the worldwide burden of cancer at 14 million new cases in the following year. [4] They actually predicted that the number of cases per annum would rise up to 22 million new cases within the next two decades – and these numbers aren't far off the mark. In the USA alone, there were an estimated **1.7 million new cases of cancer in 2015**.

Cancer that affects the breast, lung, bronchus, prostate, colon, rectum, bladder, thyroid, kidney, pelvis, endometrium, pancreas, as well as skin melanoma, non-Hodgkin lymphoma and leukemia are predicted to be the most common cases to be diagnosed in coming years. With mortality rates of over 600,000 per year attributed to cancer in the USA alone, the fight against cancer is an enormous challenge to the healthcare system and society as a whole.

With external factors playing a bigger role than previously thought, our best strategies for cancer prevention and management can clearly be concluded to

depend on lifestyle choices: The food we eat, how much exercise we do, our work environment, and even the state of our home all play big roles in how big our risk is for developing cancer.

But we noticed a lack of clear, easily comprehensible literature that helps people take action. The volume of **scientific** literature on this topic is vast and too complicated for the general public to navigate easily. It is also not distilled down to a clear, easy-to-follow course of action. On the other hand, the "average" web page on the subject may be poorly written, contradictory or emotionally manipulative, with a lack of reference to actual science.

So this guide was born.

Over the course of 18 months, we researched many hundreds of scientific studies and articles and created a "Top 100" list of cancer risks, together with scientific references and tips for how to reduce or avoid the risk.

We wanted to create a guide that was both simple enough for the average person to use, yet also solidly backed by enough research to be of value to the academic.

We initially planned to sell this guide, however I finally concluded that this information should be given to the public for free. We feel that it is simply too important and could potentially save many lives.

So the product is now available absolutely **free** in return for subscribing to our email list. People are welcome of course to unsubscribe from the list at any time, so if all you want is the free guide; sign up, download it, then unsubscribe; you have no further obligation and we wish you the very best of health.

Wishing you and your loved ones all the best,
Alex Ashton
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PART 1 - ANTI CANCER FOODS

1 – Tomatoes

Tomatoes have gained a great reputation as a healthy food choice in recent years, largely because of their high **lycopene** content and widely accepted association with reduced cancer risk.

Based on data collected by the National Institutes of Health between 2010 and 2012, an estimated **14 percent of men will be diagnosed with prostate cancer in their lifetime**, with a predicted 180,000 new cases to be diagnosed per year. Survival rates are pretty good for prostate cancer: 98.9 percent according to 2006 to 2012 data. On the other hand, the risk for acquiring kidney and renal pelvis cancer is lower but with lower survival rates as well. The risk for being diagnosed with renal cancer is 1.6 percent, with survival rates only at 73.7 percent. An estimated 62,000 new cases of kidney and renal pelvis cancer were estimated to be diagnosed in 2016. [1][2]

Studies have found that lycopene, found in tomatoes, is able to prevent or reduce the risk for specific types of cancer, e.g. cancer that affects the prostate and kidneys. The noted 2013 study by Silberstein, Silberstein, and Saphier concluded that lycopene, a lipid soluble molecule, was able to inhibit tumor formation in cases of prostate cancer. Similar results were seen in another study by Sahin, et. al., published in 2015, where a high lycopene diet was able to reduce the number and size of renal tumors. These studies suggest that increasing your tomato intake can potentially be used in cancer treatment, or at the very least decrease the risk for cancer. [3][4]

This information gives additional support to the previous research indicating that the **Mediterranean Diet** – rich in tomatoes, olive oil, garlic and other natural ingredients - has benefits for longevity.

You can include tomatoes in your diet in a variety of ways. Fresh tomatoes can be eaten as a side dish to your meal, either as a salad or as plain tomato slices with dressing. Tomato juice is a further delicious and nutritious way to get lycopene into your diet. Mix in some herbs and lemon juice for added flavor and take it in the morning with breakfast.

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2 - Alpha and Beta Carotene

Carrots are considered one of the healthiest food items you can include in your diet. They are most popularly known in natural health circles for their high **beta-carotene** content, a substance that becomes converted into Vitamin A inside the body. Vitamin A contributes to eye and skin health, as well as the immune system. Your parents weren't lying when they said that carrots would help you see better!

Alpha Carotene:

Because of the well-known role **beta-carotene** plays in human health, its sibling – **alpha-carotene** – is often overlooked. As it turns out, alpha-carotene was the focal point of a 1992 study on cancer that spawned hundreds of studies in the years that followed.

The 1992 study that started it all: In 1992, Murakoshi, et. al. focused on alpha-carotene. Alpha-carotene was isolated and supplements were included in the diet of patients affected by liver, lung, and skin cancer. The results of the study were very promising – alpha-carotene was able to decrease the number of hepatomas (liver tumors), lung tumors, and skin papillomas (skin tumors) by as much as 70 percent! The study suggests that a diet high in alpha-carotenoids could potentially play a role in the prevention and even treatment of several types of cancer. [1]

After the 1992 study, more and more researchers started focusing on alpha-carotene's potential cancer-fighting properties. A study in 2013 by Chen, et. al. focused on the effects of alpha-carotene on liver cancer, with similarly very promising results. Hepatocarcinoma cells were treated with alpha-carotene in the study. The research concluded that alpha-carotene was able to significant inhibit metastasis in liver cancer by halting further development of the cancer cells. [2]

In 2015, Liu, et. al. focused on the effects of alpha-carotene on Lewis lung carcinoma (LLC), a kind of lung tumor. The study found that alpha-carotene was able to fight LLC *in vitro*, by inhibiting the tumor's growth and metastasis to

other parts of the lung and the body. The researchers concluded that alpha-carotene could have potential as an anti-cancer agent, alone or together with chemotherapy. [3]

These last two were lab studies but there is further evidence that suggests the benefits may translate to human subjects: In 2015, a study conducted by Wang, et. al. found that a diet rich in alpha-carotene was able to lower significantly the risk of invasive breast cancer. According to the study, there was an inverse relationship between plasma alpha-carotene levels (alpha-carotene in the blood) and invasive breast cancer cases. [4]

Beta Carotene:

Beta-carotene has long been associated with carrots - the name of this organic compound was lifted from the Latin word “carota”, meaning carrot. However, beta-carotene, a pigment, is found in an abundance of fruits and vegetables and is responsible for giving them a bright orange color. In the past, the only helath benefit of carrots was thought to be their ability to improve eyesight. Beta-carotene is considered a precursor to vitamin A, meaning it becomes metabolized by the body into Vitamin A, which helps promote eye health. However, in recent years, cancer prevention has been highlighted as beta-carotene’s major benefit. [5]

There are numerous studies that have supported the claim that beta-carotene is able to prevent cancer entirely, or at least slow its progression. In 2014, a study by Kim, et al. found that beta-carotene was able to inhibit the invasion of neuroblastoma, a kind of neurologic cancer, and its subsequent metastasis. They concluded that beta-carotene could be an effective chemotherapeutic agent against neuroblastomas. Neuroblastomas mainly affect children, accounting for six percent of total childhood cancers in the USA. This is a fast-moving cancer, often metastasizing quickly into the lymph nodes. [5]

A similar study was published in 2016 by Teng, et. al.. The study found that beta-carotene was able to modify multi-drug resistant cancer cells, making them more sensitive to chemotherapy. The results suggested that beta-carotene might thus be beneficial used in conjunction with chemotherapy for severe cases of cancer. [6]

You can find beta-carotene not only in carrots but in yellow, orange, and green, leafy vegetables and fruits – including spinach, lettuce, tomatoes, sweet

potatoes, broccoli, cantaloupe, and winter squash. Because beta-carotene is responsible for the pigmentation of these fruits and vegetables, the more pigmented the fruit or vegetable is, the more beta-carotene it has.

Note that *excessive* consumption of Beta-carotene, particularly associated with use as a food coloring, has possible adverse health effects. Excess beta-carotene, once stored in the liver, cannot be converted by the body to vitamin A. In particular, excessive beta-carotene is linked to increased lung cancer risk in smokers. [7]

These studies are just a few that focus on the numerous health benefits of carrots (and their compounds). Try to include perhaps two medium-sized carrots (ideally raw!) in your daily meals or eat them as snacks to boost the amount of both alpha and beta-carotene in your diet. More than three and your skin might start to get a 'carotene glow' – which some people actually strive for. More than five or six per day is generally not advised. Note that 'baby carrots', which may have been processed to improve their color, and are in fact made from broken larger carrots, are not as good as fresh carrots.

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3 – Cabbage

Ovarian cancer is the second-leading gynecological cancer that affects American women. Over 22,500 cases occur each year in the USA alone, with most cases sadly not being diagnosed early enough for effective treatment. [1] However, recent studies have indicated that **cabbage** may help fight cancer. Cabbage is particularly rich in a substance called diindolylmethane or DIM. This substance is also found in most other *Brassica* vegetables and has been found by scientists to be able to suppress tumor growth and development in cases of ovarian cancer. [2]

A factor called STAT3 allows the cancer cells to multiply and metastasize all over the body, as well as building the cancer cells' resistance to cisplatin – a chemotherapeutic drug. This is usually seen in most ovarian cancer cases. [2]

Kandala and Srivastava in 2012 found that DIM was shown to actively protect the cells from STAT3 activation and promote cancer cell death (apoptosis). Compared to the control group of cisplatin-only treatment, DIM-only and DIM plus cisplatin treatments were able to significantly retard the growth of the tumors. **The same study also revealed minimal toxic effects of DIM on human cells**, meaning cell death is only promoted in cancer cells, sparing your normal cells. This **selective action against cancer cells is a profoundly important result** which solves the main problem with chemotherapeutic drugs, wherein both cancer and health cells are affected. [2][3]

A **clinical trial** of DIM in Boulder, Colorado, USA demonstrated that 50% of cervical cancer patients showed improvement (Del Priore et al., 2010). After 6 months, an astonishing 85% of subjects no longer needed surgery. Currently, DIM is also being evaluated in clinical trials for prostate cancer. [6]

Including more cabbage (and vegetables from the same family!) in your daily meals may have potential to reduce your risk for ovarian cancer or even give support when fighting cancer if you have already been diagnosed. Aside from eating vegetables raw, steaming them is the best way to preserve nutritional content - so try to have a side of steamed cabbage daily.

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4 - Organic Food

It has been established that no matter how well you wash **NON-organic** vegetables, you will end up eating some of the **pesticides** that were sprayed on them - because these substances are absorbed both by the plants and by the soil that supplies the plants with nutrients.

According to a study done by Magner, et. al. in 2015, after a short period of consuming **organic food**, pesticide traces in urine dropped dramatically. This indicates (somewhat unsurprisingly) that one of the major sources of pesticide exposure to humans is through pesticide-treated produce. [1]

How much is too much? Although the levels of pesticide found in the human body in the study are "officially" deemed “safe”, the study noted (importantly):

"...The system currently used for risk assessing chemicals is suitable only for one substance at a time. There is, therefore, no approved method for making an overall assessment of the effect of multiple chemicals simultaneously (i.e. combination effects, popularly known as the “cocktail effect”). There is an awareness that this is a major shortcoming." **[1]**

Glyphosate, the active ingredient in Roundup, is the most widely used herbicide worldwide. A frightening **one billion pounds of glyphosate** is sprayed on crops each year, resulting in the average American consuming small amounts of glyphosate on a daily basis. Roundup is also marketed towards gardeners and local authorities for use on roadsides, school grounds, and other public areas that affect our safety and the safety of our children.

A 2013 report published in the journal *Entropy,* [2] states that glyphosate enhances the damaging effects of other food-borne chemical residues and toxins in the environment and causes disease. Another study [3] provides evidence that Glyphosate causes birth defects "in experimental animals at concentrations much lower than those used in agricultural spraying" and states that these reports have been deliberately ignored and hushed up.

Many people have a "knee-jerk" belief that they "cannot afford to eat organic” because it is too expensive. However, with proper meal planning and education,

eating organic is not expensive. Buying organic staples in bulk and learning to cook instead of buying premade meals can cut costs dramatically. Buy a big bag of organic rice and grow some veggies - there's a big financial saving right there. Grow your own and share veggies with your neighbors. Focus on buying more fruits and veggies that are in season. Go organic today for the sake of your health.

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Further Reading:

It's Official – Astonishing New Research Finds Organic Food MUCH Healthier!

5 – Ginger

An important study [1] has recently been published regarding the action of 6-shogaol (a ginger compound) against cancer cells. 6-shogaol, a compound in ginger, has been found to have amazing activity against breast cancer cells in cell cultures in the lab - including action against simulations of cancer cells **that chemo showed no activity against even at high concentrations** of 10,000x. Unlike chemotherapeutic drugs that harm healthy cells, the concentrations at which 6-shogaol is effective **only affects cancer cells** – normal cells were resistant to the effects of the substance after 6 days. The study concluded that 6-shogaol was 2 to 5 times as active than taxol against "regular" breast cancer cells.

Note that this was a lab study and this substance changes form as it is absorbed by the body. It is not established how much of this substance would be available at the target site in a living person (bioavailability) - and so this will likely how effective it is against actual cancer cells.

However in 2008, a study investigated the bioavailability of 6-shogaol. It was found that 6-shogaol ***is*** absorbed by the body after oral dosing and is ultimately bio-converted (either in the liver or intestinal mucosa, researchers were not sure) to **glucuronide conjugates** - which can be detected in serum for a few hours after ingestion; before being eliminated by the body's natural processes. [2]

A further study from the esteemed Oxford University Press, published in *Carcinogenesis* (2014), [3] has found that ginger extract "showed 2.4-fold higher tumor growth-inhibitory efficacy than isolated constituents". In addition, **gingerol glucuronides** were detected in feces after intravenous administration, confirming that the substance is cleared out from the body effectively by the liver. [3]

If you want to give your immune system a boost and potentially help fight against cancer, add some ginger to your diet! You can opt to make ginger tea – simply add boiling water to some slices of ginger - or even prepare drinking water with some ginger and mint. If you cook, you can add chopped ginger as a spice to your stir-fries and salads, or grated ginger to bread and cupcakes as well!

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6 - Bitter Melon

Bitter Melon (*Momordica charantia*), also known as balsam pear, bitter gourd, or karela, is widely cultivated in many parts of Asia, Africa, and South America and has been used extensively used in folk medicines since old times as a herbal remedy for diabetes. [1] The bitter melon fruit is typically included in the diet as part of a vegetable dish or drink, after the seeds and pith have been taken out. Because of the abundance of Vitamin C and uniquely valuable phytonutrients in bitter melon, it can help boost the body's immune system and help fight against disease.

For the past several years, studies have supported the hypoglycemic (glucose lowering) and hypolipidemic (cholesterol lowering) effects of bitter melon - indicating its potential as a supplement beneficial for diabetes, weight loss and more. [2][3][4][5]

There are also various studies that have been published in the recent years, showing the **cancer-fighting properties of bitter melon**. Research has found that bitter melon is effective in slowing cancers of the breast, pancreas, prostate, colon, liver, stomach and nasopharynx, as well as leukemia and neuroblastoma. [6] In a paper published in *Carcinogenesis*, University of Colorado researchers administered oral bitter melon doses to mice and found a remarkable **actual 64% reduction in pancreatic tumor size without noticeable toxicity**. [7]

In a 2010 study from Saint Louis University (USA), bitter melon extract was **effective against human breast cancer cells** and primary human mammary epithelial cells. It was able to reduce the proliferation of cancer cells and induce cell death among breast cancer cells - and has been suggested as a dietary supplement for prevention of breast cancer. [8]

Bitter melon has been demonstrated to increase the number of natural killer (NK) cells, a component of the immune system, which is usually low or reduced in cervical cancer patients. [9] Its administration was also found to result in the arrest of the cell cycle among prostate cancer cells and **halt the progress of prostate tumors**. [10]

This is tremendous scientific data that most people are simply unaware of. The

studies *strongly suggest* that you can help fight against cancer and give your immune system a boost by including bitter melon in your diet. However, because of the inherent bitterness of the vegetable, it can be unpleasant eating. After you slice the bitter melon, soak the slices in salt water for a 15 to 30 minutes before cooking to get rid of some of the bitterness. Alternatively, add a few slices to your smoothie for an added boost. It can even be an important ingredient in your green juice! Make sure to mix different fruits and vegetables in your juice to get a balanced taste.

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7 - Cruciferous Vegetables

Breast cancer is one of the most terrible and tragic problems experienced today. According to Breastcancer.org, a shocking **one in eight women in the USA will experience breast cancer in their lifetime**. That's 12.5% of the total population of women in the country. [1]

Adjusting your diet is one of the many ways to reduce your risk for breast cancer. While genetics play a noted role in breast cancer, lifestyle changes may be able to help you improve your odds. Numerous studies have reported beneficial effects of **cruciferous vegetables** against breast cancer.

Cruciferous vegetables include Arugula, Bok Choy, Broccoli, Brussels Sprouts, Cabbage, Cauliflower, Collard Greens, Daikon, Horseradish, Kale, Kohlrabi, Maca, Mizuna, Mustard Greens, Radish, Rutabaga, Tatsoi, Turnip, Wasabi and Watercress.

Broccoli has been associated by studies with **reduced risk of breast cancer** in pre-menopausal women for several years. [2] A 2013 meta-analysis of 13 human studies indicated that high cruciferous vegetable intake was significantly associated with reduced breast cancer risk. [3] Steaming broccoli - a little on the light side - is a better way than boiling to preserve its cancer-fighting substances. If you're going to choose an easy side dish to include in your meals, broccoli is an excellent option.

Several studies have now found beneficial possibilities for cabbage against cancer. White cabbage and sauerkraut were studied and discovered to inhibit aromatase, a substance which breast cancer cells depend on to multiply. Through aromatase-inhibition, cabbage is able to interrupt the reproductive process of breast cancer cells. This suggests that cabbage intake could help slow (or prevent!) the growth and spread of cancer cells throughout the body. [4]

Other studies have also focused on **cruciferous vegetable intake as a whole**, and linking it to decreased risks for different cancers. Liu, et. al. in 2013 concluded that eating cruciferous vegetables could decrease your risk for bladder cancer. [5] Similar results were found by Wu, et. al. in a recent publication in 2015, wherein pre-diagnosis intake of cruciferous vegetables was associated with higher survival rates for people with lung cancer. [6] The protective effects of

cruciferous vegetables against colorectal cancer were seen in the results of Tse and Eslick's study in 2014. [7]

There are plenty of cruciferous vegetables that are easily found in your local supermarket or grocery so including them in your diet won't be too much a hassle. If you think you don't like vegetables, note that you generally start liking them by starting to eat them regularly. Knowing that they could be saving your life should help! Get into the habit of adding a side of steamed veggies to your meal with a thin sliver of butter or dash of olive oil - and you'll learn to love them in no time.

Further Reading:

Giant List Of Anticancer Foods – Herbs Info

References:

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8 - Nuts - Especially Walnuts, Peanuts, Almonds

Breast cancer is one of the most dangerous forms of cancer to affect (mostly) women, especially women who are or have undergone menopause. It was estimated that almost a quarter of a million women (approximately 231,840) will be diagnosed with invasive breast cancer in 2015 and 60,290 will be diagnosed with non-invasive breast cancer during the same period. [1]

A **human study** published in 2015 by Soriano-Hernandez, et. al. has found that high consumption of **walnuts**, **peanuts and almonds** in the diet reduced incidence of breast cancer by a factor of 2 to 3. The study included 97 patients diagnosed with breast cancer and 104 people without. Reduction of cancer risk by 2 to 3 times was seen with high consumption but not with low or moderation consumption of walnuts, peanuts, and almonds. The researchers concluded that eating walnuts, almonds, and peanuts could exert a protective factor against breast cancer. [2]

In a review of publications conducted in 2014 by Falasca, Casari, and Maffucci, the results were unanimous – **nut consumption significantly reduced mortality risk, including mortality due to cancer**. [3] The researchers even suggest that consumption of nuts should be used as a tool to reduce the world's cancer burden. **They also suggest that nuts should have a specific serving in the diet recommended by the National Institutes of Health**.

Nuts are not only delicious and tasty, they may help fight off cancer as well! So instead of grabbing sugar-laden sweets or high-sodium chips for a snack, why not opt for nuts instead? You can find organic nuts in most groceries and markets. Raw nuts are likely best.

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9 – Anthocyanins

Anthocyanins - (Berries, currants, eggplant, orange, red grapes, red wine, purple corn & more)

Anthocyanins are molecules belonging to the flavonoid class, and are red, purple or blue pigments responsible for the color of fruits. These substances occur naturally in plant tissues, particularly in red, blue, purple or black fruits. **Berries** such as blueberry, bilberry, cranberry, elderberry, raspberry and strawberry are **anthocyanin rich** and have been found by researchers to have anti-carcinogenic effects through their high antioxidant levels.

One study focused on the extracts from the six berries, finding significant cancer-fighting properties. The berries were able to promote cancer cell death and prevent the vascularization of tumors – two factors which contribute to the rapid growth and spread of cancer cells (known as metastasis). [1]

Black raspberries have been shown to inhibit promotion and progression of tumor cells – specifically for a kind of cancer that affects the esophagus, called **Barrett's esophagus**. In a 2006 study by Kresty, et. al., freeze-dried raspberries were found to reduce oxidative stress in the body because of high antioxidant activity. The study concludes that raspberries could help patients diagnosed with, or at risk for, cancer and cancer recurrence, by protecting tissues from mutations. [2]

Blueberries have been found to inhibit breast cancer metastasis by reducing inflammation and tumor growth (in vitro and in vivo studies). Mak, et. al. in 2013 found that blueberries, specifically a bioactive component thereof called Pterostilbene, could effectively halt the growth and metastatic potential of cancer cells. Very similar results were seen in Kanaya, et. al.'s study in 2014 wherein blueberries (blueberry powder was used) were able to stop the spread of breast cancer cells. [3][4]

Similar to berries, the anthocyanins in **peaches** and **plums** exhibited strong cytotoxic effects against breast cancer cells - and **only** against cancer cells! The study by Vizzotto, et. al. in 2014 showed that **extracts from peaches and plums targeted cancer cells specifically, and did not affect normal cells at all**. This **selective action** against cancer cells suggests that these fruits

could play an important role in chemotherapy. [5]

To kickstart your day, have some oatmeal with real organic fruit! Take your pick from a variety of berries, peaches, and plums. You can also make or purchase pure fruit juice to add more of these fruits in your diet. **Note that a British Journal of Nutrition study found anthocyanin content to be 51% higher in organic fruit**. [6]

Further Reading:

23 Anthocyanin Rich Foods.

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10 – Salmon

Fish has always been one of the healthiest meats you can include in your diet - and not without good reason! Not only is it a good alternative protein source, it is also low in calories while being high in vitamins and minerals. Fish, specifically **salmon**, is also a great source of omega-3 fatty acids; substances that have been found to improve cardiovascular health and prevent cancer. You read that right; the omega-3s found abundantly in salmon have been linked to cancer prevention and improved quality of life of people diagnosed with cancer.

According to Fabian, et. al. in 2015, intake of marine omega-3 fatty acids, EHA (eicosapentaenoic acid), and DHA (docosahexaenoic acid) has been linked to a decreased risk for breast cancer and increased survivorship (human studies). [1] Omega-3s are found in salmon - **and the beneficial ratio of omega-3 to omega-6 has been found far superior in wild salmon than farmed salmon**.

A similar study published in 2016 by Aucoin, et. al. concluded that omega-3 fatty acids could potentially help prevent prostate cancer or slow its progression. One of the main characteristics of omega-3 fatty acids is their anti-inflammatory powers, which can help prevent the inflammation of prostate cells and cancerous mutations due to inflammatory damage. Because of their findings, the researchers suggest omega-3 supplementation to people at high risk for prostate cancer.

Jump, et. al. in 2015 found that dietary omega-3s could reduce the risk of primary liver cancer, specifically hepatocellular carcinoma, by preventing non-alcoholic fatty liver disease. Omega-3s are known for regulating the body's cholesterol levels - which can exert a protective effect on the liver. [2][3]

If you want to include fish in your diet (and you should!) opt for **wild, fresh salmon** and boost your omega-3 intake to protect yourself from different kinds of cancer.

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11 – Pumpkin

Recent studies have found that pumpkin plays a very important role in cancer prevention. In 2012, Xie, et. al. discovered that **cucurmosin**, a substance extracted from the sarcocarp (fleshy part) of pumpkin, had a strong inhibitory effect on hepatoma "HepG2" (a type of liver cancer) cells **in both cell culture and animal studies**. [1] In the *in vitro* study, over 90% of the cancer cells were killed within 96 hours. Also, **mice fed cucurmosin had 78.4% less tumors than mice that had not been treated**. The results of the study concluded that pumpkin was able to treat cancer by promoting cell death of cancer cells by arresting the cell's normal cycle. Before a tumor is formed, the pumpkin extract was able to stop growth and development at the roots - a very important discovery in the field of cancer treatment.

In a 2013 study, similar results were found by the same team (from Fujian Medical University). The study determined that Cucurmosin kills human pancreatic cancer SW-1990 cells in vitro and in vivo - decreasing the cancer cells' proliferation and inducing apoptosis, a.k.a. cell death. [2]

Studies have also been done on how pumpkin and its extracts affect **specific types of cancers**. A 2011 study reported cucurmosin-induced cell death in **human chronic myeloid leukemia cells**. The pumpkin extract was able to cause cause cell death through mitochondria dysfunction, sapping the energy powerhouse of the leukemia cell and causing its death. [3]

Pumpkin is a very versatile vegetable. You can steam it with other vegetables, add a little salt and pepper, and eat it as is. There are also the seeds, which have noted health benefits of their own. More popular ways to eat pumpkin include baking it in a pie or making a drink with it (with the former requiring more work than an easy stir-fry). Note that major brand "pumpkin spice lattes" aren't worth it - they may contain **little or even no actual pumpkin** (but a ton of additives).

References:

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12 – Coffee

An amazing scientific study has indicated that **dark roast coffee decreases the level of spontaneous DNA strand breaks**. [1] Breaks in DNA (aka mutation) is the primary characteristic of cancer, which leads to the formation of tumors through rapid cell growth. Because of this surprising ability of coffee to strengthen DNA, including coffee in the diet implies a potential to reduce cancer risk.

According to the study by Bakuradze, et. al. (2014), **coffee was able to improve the health of DNA strands (in white blood cells) in the human body**. Reportedly, coffee **decreases oxidative damage in white blood cells**, part of the immune system responsible for fighting infection. In the study, 84 male respondents were instructed to consume dark roast coffee every day for four weeks. The blend of coffee used in the study contained high levels of caffeoylquinic acid and N-methylpyridinium. Another group was instruction to drink the same quantity of water daily. [1]

After four weeks, the control group (water intake) exhibited an increase in DNA strand breakage. On the other hand, DNA breakage in the intervention group (coffee intake) was significantly decreased - by 27%! There were no diet differences between the two groups, nor were there any changes in weight - which meant that the improvement in DNA health could be attributed directly to the intake of coffee. [1]

Other studies have also focused on the cancer-fighting abilities of coffee: In a 2011 study by Prasad, et. al., Caffeic acid, found in not only coffee but also olive oil and some fruits and vegetables, has been discovered to have a "potent anticancer effect" on the HT-1080 human fibrosarcoma cell line. The researchers suggest that coffee may play an important role as an anti-cancer agent. [2]

Despite caffeine being one of the major active components of coffee, it is also rich in other bioactive compounds like vitamin B3, magnesium, potassium, and a variety of phenols - all needed by the body to function normally. A study in 2011 revealed that coffee was able to improve the body's immune response to an allergic reaction by suppressing interleukin-12 (IL-12) and promoting anti-allergic activities. [3]

While coffee *may* play role in the development of hypertension and cardiovascular problems, it also possesses many characteristics that can help fight chronic disease such as cancer. If you choose to include coffee in your diet in order to decrease cancer risk, keep in mind that everything must be kept in moderation. Try to have coffee at the start of your day to boost your energy and your DNA health!

References:

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13 – Garlic

According to the findings of the National Cancer Institute, people who took *allium* vegetables **(chives, leeks, onions, scallions and garlic**) had about **50% lower cancer risk compared to those who did not consume these foods**.

Garlic contains *allicin* - which is considered as one of the most highly valued sulfur compounds for health. Garlic is also known to contain other highly potent substances that offer highly exemplary effects to the human body.

Garlic has been credited with a role against several types of cancer, primarily in the gastrointestinal tract, because of its ability to exert a protective effect on cellular DNA. An important study that focused on garlic's chemopreventive characteristics was published in 2007 by Shukla and Kalra. They found that constituents found in garlic were able to detoxify carcinogens from the body, as well as protect DNA from mutation. [1]

Other studies found similar results: In 2006, Galeone, et. al. concluded that **allium vegetables – garlic and onion included – lowered the risk for cancers of the mouth, pharynx, esophagus, colon and rectum, larynx, breast, ovary, prostate, and kidneys**. [2]

A literature review on several studies published in 2001 by Fleischauer and Arab found that **garlic consumption could significantly protect a person from stomach and colorectal cancers**. The same set of authors, along with Poole, published a study in 2000 on garlic consumption and the vegetable's protective effect against stomach and colorectal cancers. [3][4]

Research also shows that garlic is beneficial to the heart. It helps in lowering the level of cholesterol, preventing blockage and clotting within blood vessels, as well as in reducing blood pressure. [5] Aside from its anti-inflammatory properties, garlic is also known to be useful in increasing the level of antioxidants in the body.

References:

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14 – Artichokes

Artichokes are part of the thistle family. The stem and "petals" of this tasty and healthful vegetable are popularly used in salads and dips. Its appearance may be a little intimidating (more than a few people have been baffled by how to eat it!), but all you need to do is cut off the pointy bits, a.k.a. the small thorns at the end of the petals, give the artichoke head a good wash and you're good to go! You can boil or steam the artichoke (the latter is preferred because it preserves the nutritional content of the vegetable) until it's soft - and either toss the petals in a salad or make a dip out of them. Another way to prepare an artichoke is to place butter in between the petals after steaming and eat it as it is!

Studies have found that artichokes, or more specifically the antioxidants in them, have the potential to prevent a variety of cancers. **Silymarin** is one of these antioxidants, also found in milk thistle – and is **known for its ability to fight skin cancer and ovarian cancer**. A study published in 2002 posited that silymarin was able to scavenge "free radicals" and cellular and tissue damage in the body that had been generated by environmental pollutants like cigarette smoke and radiation; thus arresting the spread of skin cancer. Similar results were seen in a 2014 study, wherein silymarin was concluded to be an excellent candidate for the prevention and treatment of ovarian cancer. [1][2]

Recently, **other antioxidants in artichokes (other than silymarin) have been found to have strong cancer-fighting abilities on breast cancer and liver cancer**. The antioxidants in artichokes work by causing the death of cancer cells, arresting the "cancer-cell cycle", and protecting the tissues from further damage. Both studies on breast and liver cancer, published in 2008 and 2015 respectively, both concluded that antioxidants from artichokes could play a role in cancer therapy because of strong cancer-fighting abilities.

References:

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15 – Tea

In a 2006 USDA study, **tea** was found to contain over 700 different compounds, many of which are recognized for their potential to fight disease. Among these compounds, the most widely recognized and well understood are flavonoids, amino acids, vitamins, and polysaccharides. Tea varieties - green, black, white, and oolong - were found to contain high concentrations of antioxidants, giving them antitumor and anti-aging properties. [1]

Tea leaves also contain high concentrations of vitamin C, which is known to destroy cancer-causing free radicals. Green tea in particular has been linked to cancer prevention because of its **polyphenols** – which are potent antioxidants. A review of the literature, conducted by Yuan in 2013, covered different studies that focused on cancer prevention through green tea intake. The conclusion was simple - yes, drinking green tea could help decrease cancer risk. The study concludes that consumption of green tea is a safe recommendation to increase your polyphenol intake, which may help fight off cancer. [2]

More studies have been published in recent years; Makiuchi, et. al. conducted a study on Japanese green tea (Sencha, specifically) in 2016. They focused on the **effects of green tea on biliary tract cancer (BTC) and found that high consumption of Sencha could lower the risk for BTC**. Compared to other types of green tea like Bancha, Sencha worked best to lower cancer risk. [3] In the same year, Huang, et. al. published a study wherein high green tea consumption was linked with a decreased risk for liver cancer. The results, however, were only significant for women and not men. [4]

Despite numerous studies on the healthy benefits of tea, in 2013, Lambert published a review on available literature on green tea and concluded that the scientific community needed further work in order to confidently announce that "Yes, green tea can prevent cancer". [5]

The best time to drink tea is at the start of your day, preferably before breakfast to make sure you absorb all the goodness tea has to offer.

References:

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16 - Vitamin D

Vitamin D is great for improving your bone health, typically found in liver and fish oils, as well as dairy products like milk, yogurt and cheese. The most popular way to get your daily dose is through the sun! Sun exposure, specifically exposure to ultraviolet B rays or UVB, helps the skin produce vitamin D. Variations of this vitamin, namely vitamin D2 (or calciferol) and vitamin D3 (or cholecalciferol), are popularly taken as supplements for different diseases – including cancer!

Science has proven that vitamin D supplementation can prevent – or at the very least decrease the risk – for cancer. [1] Numerous research studies have found **strong relationships between vitamin D and cancers that affect the breast, prostate, and colorectal cancers**, according to a review done by Giovannucci in 2005. While there is inconclusive evidence on the link between vitamin D intake and the epidemiology of cancer, it has been observed that areas with less UVB radiation have higher cancer mortality rates. Decreased vitamin D in the blood (in overweight and obese people) is also associated with higher cancer mortality rates. Research conducted by Tagliabue, Raimondi, and Gandini in 2015 found that higher vitamin D intake was directly correlated with a reduced risk for cancer mortality in test subjects. [2][3]

You can boost your Vitamin D intake by including the following food items in your diet. [4]

- Have smoked salmon as a main dish. Sockeye salmon has 526 IU of vitamin D.

- Cod liver oil has 1,360 IU of Vitamin D in a single tablespoon so use sparingly (and with medical discretion from your doctor). It is possible to have too much vitamin D.

- A cup of milk one to two times a day can be great snack as well. Each cup contains about 125 IU of Vitamin D.

References:

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17 - Mushrooms and Green Tea Combo

Epithelial cancers, such as breast cancer, can take up to 20 years to develop, so it would be a good general strategy to improve the diet and incorporate cancer-fighting foods *as soon as possible* to reduce the risk. [1]

Recent statistical research has highlighted an unexpected food combination - **mushrooms** and **green tea** - not at the same time, but both being included in the diet. A study conducted in China among pre- and post-menopausal women showed that an increased intake of both mushrooms and green tea has significantly lowered breast cancer risk and had a reduced effect on the malignancy, or progression of the cancer. The researchers found out that the *combination* of mushrooms and green tea in the diet has significantly decreased breast cancer risk among women from ages 20 to 87 years old. The younger a woman is when they start including both mushrooms and green tea in their diet, the lower their breast cancer risk was found to be. [2]

Most breast tumors are responsive to estrogen because it's what makes them grow. Mushrooms contain natural **aromatase inhibitors**, which are substances that can block the production of estrogen in the body. [3] Eating mushrooms regularly may help in preventing breast cancer from growing and spreading, by altering the body's estrogen levels. According to Dr. Donald Abrams, an oncologist from the San Francisco Osher Center for Integrative Medicine, "Mushrooms are good medicine. Cook them well before eating them and enjoy a variety rather than any one specific type." So the main idea here is to go to town on mushrooms! Try different kinds to find out which you like and which work for your palate and budget. [4]

Along with mushrooms, green tea is also said to be effective in breast cancer prevention, according to a study conducted by Li Min-Jing, et al. Breast cancer rates were found to be lower in Asia than in any other part of the world; potentially because Asians consume tea more frequently. Aside from apparently preventing cancer, green tea also boosts the immune system and gets rid of toxins in the body. [3][5]

Try a vegetable stir fry with mushrooms as the main ingredient and have a glass

of green tea as your drink for one meal and see how you like it! Making an effort to include these two food items in your diet may help reduce your cancer risk – as well as keeping a healthy weight! Mushrooms are a good source of nutrients while being low calorie – same with green tea.

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18 – Apples

As the saying goes - an **apple** a day keeps the doctor away, and with good reason. This popular fruit is loaded with healthy dietary fiber and vitamin C, which help with digestion and immunity. According to the USDA, a single serving of apples have about 18 percent of daily needed fiber and 14 percent of daily needed Vitamin C (based on a 2000 calorie diet).

However, science has shown that apples also play a role in cancer prevention and treatment. There have been several studies published in recent years that highlight the ability of apples to exert chemotherapeutic effects on cancer cells - suggesting that apples may greatly contribute in the management of different kinds of cancer. [1]

In a 2015 study published by Delphi, et. al., researchers focused on a substance called **pectin**. It was found that this could have very significant chemotherapeutic action against cancer cells.

Although generally known as "pectin", pectin in fact consists of a complex set of polysaccharides that can be found in abundance in apples. Pectin also occurs naturally in other plants. It is present in most primary cell walls and is particularly abundant in the non-woody parts of terrestrial plants. Pectins from fruits like apples were found to produce degradation products that cause cell death when they interact with cancer cells. The Delphi study focused on apple pectic acid and found that it could kill human breast cancer cells. [2]

Other study has supported this: In terms of cancer prevention, a 2010 study by Jedrychowski, et. al. found an inverse relationship between intake of apples and colorectal cancer risk. While the consumption of vegetables and fruits other than apples did not show significant protective effect against colorectal cancer, the increased consumption of apples did. This protective effect from apples could be due to the high flavonoid and polyphenol content of the fruit, which boosts immunity and can help prevent the onset of cancer or its metastases. [3]

There are many ways you can include apples in your diet, through salads and fresh juices among others. Still, the best way to get all the benefits from apples is to eat them fresh. The USDA advises you not to wash apples until you are ready to eat them and to store them in the refrigerator to prevent spoiling. Washing

fruit in a bowl with apple cider vinegar will assist the cleansing process; rinse with fresh water.

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19 – Turmeric

Native to the Indian subcontinent and Southeast Asia, **turmeric** *(Curcuma longa* or *Curcuma zedoaria*) has been used - since 1900 BC - by Ayurvedic physicians to alleviate the symptoms of allergies and inflammation, liver complications, and rheumatism. [1] As a medicine, turmeric is traditionally taken as a tea or as an ingredient in *chai*, a traditional Indian preparation of black tea.

The component in turmeric with anticancer potential - **curcumin** - has been researched in depth. In scientific studies, turmeric has been posited to be effective in preventing colon and pancreatic cancers. [1]

According to an in vivo study in 2001, the rodent specimens that were given curcumin as a dietary supplement throughout their life cycle showed a significant reduction in potentially cancerous cellular activity as compared to those in the control group. [1] When administered orally to rats, curcumin was found to be effective in preventing cancer of the skin, stomach, colon, lung, and breast. [1] Recently, curcumin was determined to be a regulator of genes involved in cancer formation - in clinical trials, it was found to inhibit the migration of lung cancer cells. [1]

The idea that curcumin might inhibit cancer cell growth has prompted the formation of subsequent hypotheses. Most recently, curcumin has been studied for its potential to treat myeloma and breast cancer. [1]

It is reported that curcumin induces apoptosis (cell death) of cancer cells without cytotoxic effects on healthy cells. Curcumin achieves this via suppression of the nuclear factor-kappaB activation pathway, the activation of nuclear factor-kappaB being linked to a number of inflammatory diseases - including cancer. [2]

However while studies have been far-reaching, few conclusions have been drawn as to whether turmeric should be used as an actual cancer treatment. It does however make sense to include it as a strategic ingredient in an overall healthy diet and risk reduction plan.

Note that curcumin has somewhat low bioavailability; however this issue has been addressed significantly with the discovery that curcumin bioavailability is

increased by combining turmeric with black pepper in food preparations.

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PART 2 - ANTI CANCER HERBS

20 - Milk Thistle

In different parts of the world, **milk thistle** (*Silybum marianum*) is used as an herbal supplement to manage problems with the liver, gallbladder, and kidneys. There have also been numerous studies focused on the potential cancer-fighting properties of the flavonoid **silymarin**, which is abundant in milk thistle.

Studies have found that silymarin protects against both **UV-induced skin cancer** and "**photo aging**" **(light degradation) of skin**. Two studies published in 2012 and 2014 have demonstrated how **silibinin** - the main active ingredient in **milk thistle's silymarin** - is able to fight against both ultraviolet A (UVA) and ultraviolet B (UVB)-induced skin damage and cancer. The study published 2012 by Narayanapillai, et. al. concluded that silibinin could remove UVA-damaged cells from the body and help prevent skin cancer. The same results were mirrored in the 2014 study by the same researchers, this time on UVB-damaged cells. Not only was silibinin able to remove UV-damaged cells, it was also able to speed up the repair the damage on other cells. [1][2]

What's truly astonishing is that silibinin has been found to act *selectively* - killing cells that have been mutated by UVA, while simultaneously being non-toxic to healthy cells and also accelerating repair of UVB-damaged non-cancerous cells. This suggests that milk thistle can play a very important role in chemotherapy, of which the big problem has always been how chemotherapy drugs kill *both* healthy cells and cancer cells.
Joaquim Bosch-Barrera, an oncologist and biomedical researcher working in Girona, Spain, has published a series of studies on milk thistle and various cancers, with some very promising results. One 2016 **human study** from his cancer research team found that silibinin from milk thistle significantly suppressed progressive brain metastases in lung cancer patients. [3]

For the above reasons, milk thistle appears to be one of the best of the "anti cancer herbs". Because milk thistle is widely regarded as an excellent herbal remedy, it is readily available as a supplement in capsule or tincture form. It is considered one of the "tonic herbs" - and lab tests have reported it not to cause

harm when taken over a prolonged period. [4] You can opt to take the tincture after meals or go for the capsule, which is by far the easiest way to include milk thistle in your diet.

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21 – Rosemary

There have been recent studies on **Rosemary** that showcase potential health benefits that involve neurological health - and more recently, cancer! Researchers have found various evidence of Rosemary's potential as an anti-cancer agent.

In the practice of medicine, chemotherapy is the current standard in treating cancer. However, chemotherapeutic drugs are not only effectively cytotoxic against cancer cells, but also cause much harm to healthy cells as well. This is why patients undergoing chemotherapy lose their hair, experience severe weakness, and lose their appetite. But recent studies have found that medicinal plants, rosemary in particular, represent a fertile ground for the development of novel anticancer agents - as some of them have been found by lab studies to act *selectively* against the cancer cells without attacking the healthy cells.

A 2011 review [1] published in the peer-reviewed *Critical Reviews in Food Science and Nutrition* concluded that components in Rosemary suppressed the development of tumors in several organs including the colon, breast, liver, stomach, as well as melanoma and leukemia cells. **Rosemary extract, as well as the molecular components carnosol, carnosic acid, ursolic acid, and rosmarinic acid were found to have significant anticancer potential.**

A study published in 2014 in the Internatioal Journal of Oncology reported that Carnosol, an active constituent of rosemary, significantly reduced the viability of human colon cancer (HCT116) cells, causing apoptosis or cell death through the inhibition of the signaling pathway used by the cancer cells. [2]

A 2012 study discovered that Rosemary essential oil **at a concentration of just 1%** showed very strong anticancer activity (greater than 90%!) on two ovarian and one liver cancer cell lines *in vitro*. Interestingly, this effect was greater as a whole, compared to three of its main components individually: 1,8-cineole (27.23%), alpha-pinene (19.43%) and beta-pinene (6.71%) - adding evidence to the herbalists' philosophy of **utilizing whole extracts or synergistic blends as opposed to isolated components**. [3]

If you decide to include rosemary in your daily diet, you can easily do so by

adding the herb to your dishes (chicken is rosemary's most popular partner!), or making rosemary tea with dried leaves. You may also opt to include it in massage or bath oil blends, significantly diluted or course. Don't ingest rosemary in essential oil form! Essential oils are generally meant to be applied externally not ingested.

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22 - Frankincense and Myrrh

Essential oils from **frankincense and myrrh** are typically found as aromatic ingredients used in incense and in skin care products like soaps and lotions. However science has found that genuine essential oils from frankincense and myrrh have the ability to suppress multiple cancers.

Through a process called hydrodistillation, essential oils from the two resins were studied by Chen, et. al. in 2013. The researchers discovered how cancer cells were susceptible to the apoptotic effects of the oils, more so with myrrh than frankincense. [1] In this study *in vitro* study, the essential oils from both frankincense and myrrh were shown to protect humans from breast cancer, lung cancer, cervical cancer, liver cancer and skin cancer – reducing cancer risk by at least 50% at surprisingly low concentrations. Myrrh was seen to be more effective at cancer prevention than frankincense, but both were able to significantly affect the growth of cancer cells.

A 2009 comparative study [2] focused on 374 herbal extracts and their effects on neuroblastoma and found that frankincense and myrrh ranked in the best 15 of all 374 extracts! They easily outperformed green tea, oregano, garlic, sage, ginger, rosemary, olive leaf and many others.

Earlier research published in 2006 by Akihisa, et. al. found cytotoxic effects of frankincense-derived compounds against neuroblastoma - with 15 of the 18 compounds demonstrating potent cytotoxic activities *in vitro*. [3] In 2011, a study on frankincense oil found that **it was selective towards breast cancer cells while sparing healthy cells**. [4]

If you want to give natural support against breast cancer (or other cancers specifically), you can use essential oils (appropriately diluted) from frankincense and myrrh as a massage oil. Some opt to add one or two drops of the oils to 8oz of drinking water or tea, with a little honey, as a warm drink in the morning or before bed. Be absolutely sure to use 100% pure essential oil from a reputable company and be aware that cheaper brands are often adulterated. Do not overuse.

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23 – Moringa

Called the "miracle tree" on account of its many virtues, **Moringa** is very well known in India, parts of Africa, the Philippines and several other countries, yet it is relatively unknown in regions such as the USA and Europe. Moringa supplements are popular for their various health benefits, from treating anemia to arthritis – but scientific studies that support these claims are insufficient. However, a 2013 publication in the scientific community has found medically significant links between cancer and the intake of Moringa. Since then, other researchers have focused on the anti-cancer activity presented by the Moringa plant.

The 2013 study published by Berkovich, et. al. found that a hot-water extract of the leaves of *Moringa Oleifera* killed up to 97% of human pancreatic cancer cells (Panc-1) after 72 hours in lab tests. Moringa leaf extract inhibited the growth of all pancreatic cell lines tested. The researchers concluded that the extract could significantly increase the efficacy of chemotherapy in humans, or even play a role as an active agent in chemotherapy. [1]

Studies have also focused on the powerful anti-cancer compounds of Moringa such as kaempferol, rhamnetin and isoquercetin. Researchers are discovering that Moringa has anti-cancer potential with positive results so far against ovarian cancer, liver cancer, lung cancer, and melanoma in lab tests. In 2015, Al-Asmari, et. al. found that Moringa extracts used on cancer cells significantly reduced cell survival through apoptosis (programmed cell death). The study saw a 7-fold increase in dead cancer cells after treatment with Moringa leaves and bark. [2] While Al-Asmari's study did not find Moringa seed extracts as effective as extracts from leaf and bark, Elsayed, et. al. (also in 2015) found that seed essential oils did, in fact, have potent cytotoxic activities against cancer cells. [3]

The easiest way to include Moringa in your life is through supplements in the form of capsules. They are typically taken once or twice a day with meals. Of course, you can also go natural! If you can find fresh Moringa, brewing the leaves and bark for tea is a great option. In certain parts of the world, Moringa is also an important food source in the fight against malnutrition! The leaves can be steamed or stir-fried, or even dried and powdered so you can store the plant for future use.

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24 - Burdock Root

Native to Europe and northern Asia, **burdock root** (A*rctium lappa*) is described in historical herbal texts as a "blood purifier." Physicians in ancient China used burdock root to treat skin conditions, venereal diseases, respiratory infections and kidney problems. In Medieval Europe, it was used to remedy various ailments including arthritis, gout, pneumonia, and scurvy. Although scientific data is lacking overall, recent diabetes research determined that burdock root is an effective eliminator of cancer-causing toxins that accumulate in the intestinal flora from improper digestion of certain foods. [1]

Burdock root has a long history of use in traditional/herbal anticancer formulas including "Flor Essence" and "Essiac." Burdock was one of the ingredients in the Hoxsey herbal formula, which was first marketed as a cancer cure in 1919. Though now discredited by orthodox medical establishments, this protocol had many adherents.

Recent studies have also shown how burdock root can contribute to fighting cancerous growths of cells. Predes, et. al. in 2011 found that the burdock plant had significant in vitro anti-proliferative and antioxidative activity against cancer cell samples from humans. This suggests (but does not prove) that burdock root may have potential to treat cancer in humans without the dangerous side effects of chemotherapeutic drugs. Similar results were seen in another 2011 study by Urazova, et. al., wherein l-asparagine, an extract from burdock root, was able to inhibit metastasis of cancer, specifically in malignant tumors found in subjects with lung cancer. The study found that l-asparagine (an amino acid also found in asparagus) could also be used in conjunction with chemotherapy, improving its anti-cancer activity. [2][3][4]

You can find burdock root in a variety of places - and a variety of forms. Dried burdock root can be found in tea and herbal shops, as a dried root, tea, or extract. You may also see it as an ingredient in traditional-style beverages. You can even make the tea yourself if you wish - perhaps blending with other herbs and even dried fruits or vegetables as well.

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25 – Grapeseed

Grapes are a very popular fruit that also have a long history of use in natural remedies. Historically, grapes were used to manage bleeding, inflammation, and pain from diseases of the skin, kidney, and liver.

Resveratrol is a naturally occurring polyphenol found in **red grapes** that provides a number of anti-aging health benefits - including improvements to metabolism, cardioprotection, and cancer prevention. Recent reviews however are cautious not to recommend resveratrol as a cancer treatment, highlighting both positive and negative study results. [1]

Other studies have focused on the efficacy of **grape seed extract** in the management of different chronic illnesses, with plenty of research done on the management of cancer, **particularly colorectal cancers**.

A research team from the University of Colorado Anschutz Medical Campus, Aurora, found evidence that grape seed extract was effective against colorectal cancer. In their study, the extract from grape seed induced the death of colorectal cancer cells – while ignoring the body's healthy cells. In fact, the efficacy of grape seed extract increased as the metastatic potential of the cancer cells increased. Not only is grape seed extract selective in causing cell death only in cancer cells, it becomes more efficient the more dangerous cancer cells become. [2]

Numerous studies have demonstrated that certain nutritive and nonnutritive phytochemicals with potential cancer-preventive or antitumor activity can be isolated from grape seeds. Of these compounds, proanthocyanidins are worthy of mention. Grape seed proanthocyanidins have been found to suppress the potential of pancreatic cancer cells to migrate (metastasize) through the inhibition of their movement from epithelial to mesenchymal (deeper tissue). [3]

Proanthocyanidins have also been **reported to inhibit the process of angiogenesis (creation of new blood vessels) induced by colon cancer and to suppress colon tumor growth itself.** [4] The proanthocyanidins in grape seed extract act against colon cancer cells, significantly inhibiting cell viability while inducing cell death among cancer cells. [5] Proanthocyanidins can accumulate in high amounts in the colon because they are usually poorly

absorbed along the gastrointestinal tract. [4] This is beneficial for the body as this means that grape seed proanthocyanidins can suppress cancer cell growth more efficiently in the colon.

Red grapes are of course available worldwide; Grape seed extract may be found in supplement form.

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26 – Wormwood

The genus of plants called **Artemisia** contains several hundred species, notably including the plants mugwort, tarragon and **wormwood**. Wormwood (*Artemisia absinthium)* has been used in herbal medicine since ancient times. It has an extremely bitter taste, is highly astringent and derives its name from its traditional use against intestinal parasites. The best known use of wormwood is in the alcoholic beverage, *Absinthe*, - which according to the traditional recipe was also prepared with several other herbs, including lemon balm, mint, anise, fennel, hyssop, marjoram, angelica and dittany of Crete. [1]

Wormwood has shown tremendous promise as a potential anticancer agent - with numerous, recently-published studies focusing on how extracts from wormwood are able to target cancer cells and halt their growth.

Artemisinin, a compound derived from Wormwood, has shown much promise with anti-proliferative and apoptotic (killing) effects on a number of cancer cell types. *Artemisia annua* was first noted as a possible anticancer herb in 2001, when two researchers at the University of Washington learned that wormwood showed highly selective activity against breast cancer cells. [2]

It has been discovered that artemisinin reacts with iron to form free radicals that kill cells. Since cancer cells' uptake relatively large amounts of iron compared to normal cells, they are more susceptible to the toxic effect of artemisinin. [3] The selectivity and the anticancer effect of artemisinin is thus much enhanced (up to 100x) by the preloading of cancer cells with iron. [4]

Research conducted at the Cancer Research Laboratory, University of California (Berkeley) has found that Artemisinin was able to arrest the growth of breast cancer cells in both early and late stages of cancer, while healthy cells were spared from the plant's cytotoxic effects. [5] Yuan, et. al. in 2016 found that flavonoids from Artemisia exhibited strong cytotoxic effects against cancer cells of the liver and the cervix. [6] According to Tilaoui, et. al. in 2015, Artemisia essential oil also has anti-proliferative effects on cancer cells. [7]

Absinthe is still an alcoholic drink that can harm your liver. You may be able to obtain wormwood as a dried herb from a herbalist. Wormwood is also

obtainable in the form of wormwood bitters, a traditional ingredient added in very small amounts to various beverages. Wormwood contains thujone, a convulsant when consumed in significant quantities. Caution / guidance from a trained professional herbalist is suggested.

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27 – Dandelion

There is encouraging evidence that dandelion (*Taraxacum officinale*) inhibits the growth and development of a wide range of cancer types and influences their metastasizing behavior.

Dandelion leaves are used by practitioners of both Ayurvedic and Chinese medicine to treat cysts and abscesses, water retention and tumors. [1]

A 2008 study provided scientific data on *Taraxacum officinale* that highly suggests that dandelion extracts or their constituents exert anticancer activities in vitro. In this study, three aqueous extracts prepared from the mature dandelion leaves, flowers, and roots were investigated for their activities on tumor progression and invasion. The results of this study had demonstrated that dandelion leaf extract suppresses the growth of MCF-7/AZ breast cancer cells in an ERK-dependent manner and blocks the invasion of LNCaP prostate cancer cells into collagen type I. On the other hand, dandelion root extract blocks the invasion of MCF-7/AZ breast cancer cells. [2]

The flower extract of dandelion also shows striking antioxidant activity in both biological and chemical models, as shown in a 2005 Canadian study. In this study, the extract from dandelion suppressed superoxide and hydroxyl radicals. [3] These results translate to dandelion being a potential novel anticancer agent.

Dandelion leaves are edible and may be prepared in several ways:
http://www.herbs-info.com/blog/amazing-things-to-do-with-dandelions/

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28 - Medicinal Mushrooms

Mushrooms have a wide range of uses - from culinary to medicinal. This stir-fry favorite has been found to contain a wealth of bioactive compounds that exert cancer-preventive effects and thus have potential as novel anticancer agents. These compounds found in mushrooms have a variety of biological activities, including immunomodulating, free radical-scavenging, anti-inflammatory, antibacterial, antifungal, antiviral, hepatoprotective, antidiabetic, and anticancer properties. It comes without surprise that medicinal mushrooms have always played an integral role in traditional Chinese medicine (TCM) for preventing or treatment of a variety of diseases, including cancer. [1]

A study from the Cancer Research Laboratory of the Methodist Research Institute, Indianapolis, demonstrated the therapeutic potential of medicinal mushrooms against breast cancer cells. According to this study, published by Jiang and Sliva in 2010, medicinal mushrooms retard the proliferation of highly invasive breast cancer cells by inducing cell cycle arrest and inhibiting the expression of genes that regulate the cell cycle of cancer cells. The ability of breast cancer cells to adhere, migrate, and invade was also suppressed by the medicinal mushroom blend – effectively stopping metastasis. [2]

Patel and Goyal in 2012 published an updated review on anti-tumor mushrooms. Mushrooms belonging to the following genera have been found to have anticancer potential: ***Phellinus***, ***Pleurotus***, ***Agaricus***, ***Ganoderma***, ***Clitocybe***, ***Antrodia***, ***Trametes***, ***Cordyceps***, ***Xerocomus***, ***Calvatia***, ***Schizophyllum***, ***Flammulina***, ***Suillus***, ***Inonotus***, ***Inocybe***, ***Funlia***, ***Lactarius***, ***Albatrellus***, ***Russula***, **and** ***Fomes***. The researchers conclude that mushrooms have a big potential in stopping the cancer cell cycle at different stages, and could potentially be used in forms of cancer that lack effective chemotherapeutic drugs such as lymphocytic leukemia, acute myeloid leukemia, and Hodgkin's lymphoma. [3]

Numerous scientific studies (mostly from Asia) have investigated the anticancer properties of **Reishi Mushroom** - *Ganoderma lucidum*. The Reishi mushroom is a focus of recent studies on cancer, with a recent publication in 2016 by Jin, et. al. The researchers found that **the mushroom could be used adjunct to conventional chemotherapy** by improving tumor response to treatment and boosting the immune system. [4]

Another medicinal mushroom of interest is Turkey Tail fungus (*Trametes versicolor*) This one has been the subject of much study in recent years and even some favor within orthodox medical circles. We wrote a full report on TTF here, which also includes a video from noted mycologist Paul Stamets: http://www.herbs-info.com/blog/video-amazing-cure-of-terminal-breast-cancer-with-turkey-tail-fungus/

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29 – Barberry (*Berberis vulgaris*)

Barberry has been used in Ayurveda (traditional Indian medicine) for over 2,500 years. It is primarily used to treat fever, diarrhea, nausea, stomach upset, and fatigue, but most recently it has been recognized as an anticancer herb. [1]

Barberry is found to have powerful antioxidant, anti-inflammatory, and antibiotic properties. It is used interchangeably with goldenseal (more commonly used in the West) because the two share a similar chemical composition. Modern studies indicate that barberry improves immune function and reduces hypertension, and according to Ayurvedic tradition, it is an effective treatment for liver tumors. [2] The results of a study in Taiwan indicate that when administered at high doses to cancer patients over time, berberine - a potent alkaloid in barberry - killed cancer cells in humans. [3]

Barberry was one of the ingredients in the Hoxsey herbal formula, which was first marketed as a cancer cure in 1919. [4]

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PART 3 - FOODS ASSOCIATED WITH INCREASED CANCER RISK

30 - Red Meat

There have been sufficient studies over the years that link high **red meat** consumption with an increased risk for cancer, for cancer organizations such as the American Cancer Society and the National Cancer Institute to cite red meat as a risk factor for colorectal cancer. [1][2]

A study conducted by Cross and Sinha in 2004 found that red meat cooked at high temperatures, specifically preserved meats, contains mutagens that expose humans to NOC (N-nitroso compound) – a compound **directly linked to colorectal cancer**. High levels of NOCs are typically found in meat that has been processed or preserved. This research suggests that the combination of fat, protein, iron, and preparation of red meat could contribute to the mutation of normal cells in the colon and rectum. [3] Similarly, Di Maso and his researchers focused on the dietary choices that could contribute to cancer in a 2013 study. It revealed that **red meat consumption was a risk factor for cancers of the oral cavity, pharynx, nasopharynx, esophagus, rectum, pancreas, breast, endometrium, and ovaries**. [4] This coincides with the International Agency for Research on Cancer's (IARC) decision to classify *processed* meat as a carcinogen and red meat as a probable carcinogen. [5]

Tips: Instead of including an unhealthy amount of red meat in your diet, go for alternative sources of protein like fish, seafood, and chicken instead. Add more fruits and vegetables to your daily meals as well to give your immune system a boost. If you are unwilling to cut out red meat from your diet, make sure to avoid

processed, pre-packaged, and canned meat - always go fresh! Fresh meat means that you can adjust how you cook your meat and avoid the preservatives that come with the processed kinds you often see in the supermarket and the deli.

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31 - Processed meats

Processed meats have earned the bad rep of being loaded with sodium, because salt plays the most important role in preserving any type of food. The amount of sodium in frozen hotdogs, canned meats, and similar food items is directly linked to hypertension, heart disease, and kidney disease. However, processed meats also have direct links to cancer – a fact that is typically overlooked. Different studies have found that intake of processed meats is directly linked to breast and colorectal cancer risk and mortality.

Inoue-Choi, et. al.'s study in 2016 found that eating processed, red meat increases a woman's postmenopausal risk for breast cancer. In fact, the higher the intake of nitrate (a substance used to treat processed meat), the more positive the association with localized breast cancer. Similar results were seen in Bernstein, et. al's 2015 study, where the results showed a significant positive relationship between processed meat intake and the increased risk for colorectal cancer, specifically distal colorectal cancer. [1][2]

More recent studies have also found similar associations between processed meat intake and the risk for Non-Hodgkin's lymphoma and prostate cancer. While the exact mechanisms for this increased risk are still widely unknown, it is thought that it may be caused by the chemicals used in the preservation process which cause cancerous changes in the body's cells. [3][4]

Instead of picking up a can of meatloaf or frozen hotdogs at the local supermarket, head over to the fresh meat section instead. Going organic is still the best way to get chemical and antibiotic-free meat – but fresh meat from your local butcher's can be a good start to healthier meals and reduced cancer risk.

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32 - Too much protein

Protein plays a very big role in our diet. It is an important nutrient responsible for building and repairing the body's tissues. Without protein, our muscles start to "shrink" or lose volume ("muscle-wasting"). However despite how important protein is, too much can cause health problems as well.

For a long time, it has been thought that people who have cancerous growths or tumors suffer from exponential tumor growth and metastases in the presence of a high protein diet. Now, science has proven it!

In 2013, a group of researchers focused on dietary protein intake and tumor growth in cases of breast and prostate cancer. **By inhibiting dietary protein, the researchers found that tumor growth was reduced by 70 percent in cases of prostate cancer and 56 percent in cases of breast cancer**. And it doesn't stop there! **Replacing animal protein with vegetable protein was also able to reduce tumor growth by 37 percent** – showing that inhibit of protein doesn't simply mean a reduction in quantity but a change in quality as well. [1]

Another study published in 2014 found that lower protein intake in older adults (65 and older) lead to a major reduction in cancer incidence and mortality. The researchers suggest that a diet with restricted protein intake could possibly improve the quality and longevity of life. The Recommended Dietary Allowance for protein is a minimum of 0.8 grams per kilogram of body weight. You can actually use the USDA's online calculator to compute your protein intake based on your personal needs. [2][3]

Don't be fooled by the whole "more protein = better health" shtick! Vegetable protein is an excellent alternative to meat protein (especially since red meat has also been linked with a risk for cancer) and can help reduce cancer occurrence and consequent mortality risk.

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33 – Acrylamide

Fried food is a favorite all over the world – from store-bought potato chips to deep fried chicken. With the advent of "fast food", the prevalence of deep frying food has reached a new level, adding unhealthy calories and sodium to the daily diet; leading to a high risk for hypertension and heart disease. However, fat and sodium aren't the only negative things that come with eating fried food. A substance called **acrylamide** forms when food is fried under extremely high temperatures - especially when burnt; this substance is classified by the International Agency for Research on Cancer as a "probably human carcinogen". Acrylamide doesn't only occur in fried food, it is actually a common industrial material used in paper and plastic production – meaning trace amounts may also be found in food packaging and similar products. [1]

While recent studies have shown varying results on the effects of acrylamide on humans, it cannot be denied that the substance has been found to increase the risk for cancers of the mouth, throat, bowels, kidney, breast, and ovary. Despite these studies, a systematic review of available acrylamide and cancer literature in 2014 claimed that the majority of studies did not find significant association between the two but that more research is needed in order to draw a significant consensus. [2]

One study in 2014 is dubbed the "first study" to show an actual, direct correlation between acrylamide intake and colorectal cancer – manifesting as specific mutations in the cells of the colon in both men and women. Other damaging effects of acrylamide to the body include cellular aging, infertility, liver toxicity, and even brain damage. [1][3][4][5]

In the meantime, skip or avoid fried food, especially high temperature deep frying. There are many alternative options to frying – you can make baked potato chips at home or opt for roasting your chicken instead. These are excellent ways to help keep off the extra weight, reduce your risk for hypertension, and most importantly, protect yourself from cancer. It is also advisable to **avoid eating burnt food of any kind** - acrylamide is found in burnt toast and other blackened foods.

Note also that smokers are exposed to substantially more acrylamide from tobacco smoke than from ingesting burnt food. [1]

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34 - Smoked / Flame Grilled food

Smoking food has been touted as a great alternative to frying because of less fat involved in the cooking process. However, **smoking** or **flame grilling food** exposes it to **tar** formation – the same kind of tar that enters the lungs when you smoke cigarettes. Grilling meat on an open flame exposes food directly to charring and smoke – and this leads to tar forming on the food. According to the WHO, tar contains a myriad of carcinogenic substances that contribute to the development of cancer. While this kind of cooking has become very popular because of the smoky flavors, there are many health risks involved that people often overlook. [1]

Different studies have linked smoked food to the development of breast cancer. One of the most significant was by Tao, et. al. in 2012. They found that there was a strong association between the intake of smoked meat and the risk for acquiring breast cancer. The study found specifically that the risk of breast cancer increased for women with a specific gene called the *SULT1A1 variant allele* who had high smoked meat intake. [2]

Other studies have similar results linking grilled meat to increased cancer risk. Research done by Tang, et. al. in 2007 concluded that reducing your intake of grilled red meat also reduced the risk for prostate cancer. Joshi, et. al. in 2015 also found a similar relationship between grilled or barbecued meat intake and colorectal cancer. [3][4]

Time and time again, science has backed up the claims of smoked and grilled food being bad for your health. Maybe it's time to start avoiding these foods and reduce your risk for cancer altogether.

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35 – GMOs

The growing demand for food sources has led to the creation of genetically-modified organisms or food, popularly called **GMOs**. The genes of vegetables, fruits, and animals are changed in order (so it is claimed) to resist disease and improve production. However, everything comes with a price – literally and figuratively. GMOs may pose a threat to human health, as well as our economy. GMOs are cheaper than organically grown food but they only funnel money towards large corporations and businesses. But the biggest threat GMOs pose is a significant link to disease, particularly cancer.

The scientific community has faced a long battle in the publication of works that show the negative side of genetic engineering. In 1998, Dr. Pusztai conducted research on the effects of eating genetically-engineered potatoes and found that test subjects experienced hormonal problems, developed tumors, and had damaged immune systems. While he remained unpublished and was subsequently suspended by the institute where he worked, his results are not something that the scientific community can turn a blind eye to, no matter what mudslinging is thrown his way. [1]

Another study experienced the same "black-listing" as Pusztai – and this one is pretty recent. In 2014, Sèralini and his group of researchers found similarly damaging results when test subjects were fed with genetically-modified maize. The results showed that eating genetically-modified maize caused severe liver damage and growth of mammary tumors. This study was requested by the editor of *Food and Chemical Toxicology* to be retracted after one year of publication because the results were "inconclusive", despite the scientific process and method involved in the study being correct. [2][3]

Similar results were seen in a published study on genetically-modified bacteria sprayed on crops. The researchers discovered that *Bt* (Bacillus thuringiensis) caused a decrease red blood cell production by the bone marrow or "hematotoxicity" – a process that characterizes a blood cancer called leukemia. [4]

This is of course a highly charged and controversial topic as there are billions of dollars at stake. But one thing is certain – it ***should be*** up to you to decide if genetically-modified is worth the money you save and the risk you take with

your health and the health of your loved ones. There is no valid reason why food should not be clearly labeled. We have a right to know what we are eating.

Further Reading (Amazon link): Altered Genes, Twisted Truth: How the Venture to Genetically Engineer Our Food Has Subverted Science, Corrupted Government, and Systematically Deceived the Public.

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36 – BHA

BHA - butylated hydroxyanisole - is a **preservative** that was approved by the FDA for use in a variety of products, including food. However according to the International Agency for Research on Cancer, BHA is a possible human carcinogen, with numerous studies showing carcinogenicity. Although there are currently no published studies on the effects of BHA on humans, the label "possible human carcinogen" is replicated in different studies on test animals. Despite this, BHA can be found in some cereal, potato chip, and beverage brands that have been designed for extended shelf life. [1]

Vandghanooni, et. al. found that BHA causes severe damage to DNA through cell death and gene fragmentation – basically destroying the body's DNA. This is an important cornerstone to consider when linking BHA with cancer, since cancer is essentially the mutation of the body's healthy cells into cancerous ones. Numerous studies even as far back as the 1980s linked BHA intake with stomach cancer, causing damage and modification in cells of the gastrointestinal system. [2][3]

A newer angle on BHA intake was taken by a group of researchers in 2013, finding that **BHA not only causes tumors but also stops the body from fighting back against them**. The study revealed that BHA blocked tumor-associated macrophages, affecting the body's immune response to potentially cancerous growths. [4]

When you buy food from the grocery, be more vigilant in checking food labels, demand lists of ingredients when these are not present - and avoid items with BHA (typically found in snack foods).

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37 - Farmed Salmon

While salmon ranks pretty high on the list as a "healthy food" because of its high vitamin D and omega-3 fatty acid content (plus it tastes pretty amazing), the popularity of this fish in the market has led to illegal farming practices – resulting in **farmed salmon** that is toxic to health, specifically linked to cases of cancer. The scientific community remains divided when it comes to the benefits and risk of eating farmed salmon but one thing is clear – **studies have found cancer-causing substances in farmed salmon** and certain practices have resulted in elevated health risks.

J. Foran and his team of researchers found that **toxins, specifically variations of dioxin, were found in high levels in farmed salmon** (higher levels in European salmon compared to American salmon). Their study published in 2005 discovered that the intake of farmed salmon caused an increase in dioxin intake and therefore elevated health risks for consumers. While another study published by Foran, et. al. in the same year concluded that the benefits of salmon consumption outweighed the risks, the results were the same – there were toxic chemicals found in farmed salmon that could cause health effects. [1][2]

According to the WHO, dioxins have been directly linked to a variety of cancers – and are classified as "known human carcinogens" by the International Agency for Research on Cancer (IARC). People who are very susceptible to cancer risk from dioxin intake include pregnant women and their unborn children, as well as people who have weak immune systems. [3]

If you're going to include salmon in your diet, it is suggested to choose wild or organic salmon.

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38 - Microwave Popcorn

This famous movie snack is actually a danger to your health - and it's not just because of the corn, butter and salt. New studies are being conducted on how chemicals found in microwave popcorn **packaging** can cause cancer.

In 2012, two researchers, Martinez-Moral and Tena, conducted an experiment on microwave popcorn packaging and found that it was abundant in a variety of PFCs or perfluorochemicals. According to the NIH, exposure to PFCs have been directly linked to infertility and cancer, through the dysregulation of hormones and the immune system. While a further experiment conducted by Moreta and Tena in 2014 found that the PFCs did not migrate from the packaging to the popcorn, the presence of PFCs still places the consumer at a certain amount of risk of acquiring cancer. [1][2][3]

Another study actually linked microwave popcorn to lung disease, although not specifically cancer. The 2012 study by Egilman and Schilling found that exposure to the flavoring used in microwave popcorn lead to inflammation of the lung's tiny airways, causing problems in respiration. [4]

Instead of buying microwave popcorn, try to find organic, dried kernels instead. Pop them over the stove and add fresh butter and herbs for a gourmet (and healthy!) version of the popular snack.

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39 - Canned food

Canned food has caused controversy not just because of its high sodium and preservative content, but because of bisphenol A in the cans themselves. Bisphenol A, also known as "BPA" is a now-infamous chemical that is used to make plastic as well as the lining of metal cans. You will often see "BPA-free" containers everywhere, targeted towards the health-conscious buyer, **though according to some reports the BPS that has been used to replace it may be just as hazardous**. [1] According to the Mayo Clinic, BPA has been used in industrial processes since the 1960s – and not just in the manufacture of plastic items; it can be found in food and beverage cans as well – with most people being unaware of the latter. The most dangerous fact to consider is that **the body's biggest source of BPA is through the diet**, meaning it comes from BPA-contaminated food and drink we have readily ingested. [2][3]

BPA is dangerous because numerous studies have linked its presence in the body or exposure to it to certain types of cancer. A recent study published by Deb, et. al. this year in 2016 found that BPA disrupts the body's hormones and induces the expression of cancer genes, specifically the gene HOXB9 for breast cancer, both in vitro and in vivo. Chen, Z., et. al. also had similar results, but in terms of colorectal cancer. The researchers concluded that BPA caused the spread of colorectal cancer cells to surrounding tissue, triggering metastasis. There are hundreds of studies that have very similar results, linking BPA to cancer occurrence and progression.[3][4][5]

To protect the public, the National Institutes of Health suggests reduction or avoidance of canned foods to reduce BPA introduction to the diet. Instead of buying canned food, opt to ditch the cans and eat fresh foods instead. Don't increase your cancer risk by willingly eating and drinking food from BPA-contaminated cans.

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40 – Sugar

Primarily, sugar has gained its bad reputation for causing persistently high or uncontrolled blood sugar levels, which can lead to diabetes. Recent studies have also found links to other chronic diseases, with cancer at the forefront. Sugar - specifically glucose - is known to supply fast-growing cancer cells with energy - meaning a diet with high sugar has been theorized to be more likely to fuel the metastasis of cancer cells.

This is not new information. It was in 1931 when Dr. Otto Warburg won the Nobel Prize for his work demonstrating that cancer cells in the human body derive nourishment through the fermentation of glucose. He wrote *"Oxygen gas, the donor of energy in plants and animals, is dethroned in the cancer cells and replaced by an energy-yielding reaction of the lowest living forms; namely a fermentation of glucose."* [1]

New scientific research has identified sugar not only as the fuel source for an already existing cancer, but as a **primary driver in oncogenesis** – or the transformation of otherwise perfectly healthy cells into cancerous ones. In 2014, Onodera, Nam, and Bissell published a study wherein the results showed that **increased glucose uptake activates three oncogenic pathways - forming malignant or cancerous cells**. On the other hand, reducing glucose intake suppressed oncogenesis and promoted balance and organization in the formation of new cells. This study shows a whole new side of sugar and raises alarm on the implications of a diet with high glucose intake. [2]

Further studies have also focused on how increased sugar intake can increase your cancer risk. In 2012, Mullie, et. al. found a link between breast cancer and high glycemic index or glycemic load. Even after adjusting for body mass index, physical activity, and other lifestyle choices, as well as menopausal status and hormones, did not significantly affect the results. High glycemic index was still significantly associated with higher breast cancer risk. [3]

In 2015, a study by Lin, et. al. discovered that high glucose consumption promotes metastasis through the migration and invasion of colorectal cancer cells. [4] A 2013 study associated high-glucose intake with increased signaling for cancer-cell production and proliferation. [5]

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41 – Alcohol

Heavy alcohol consumption is one of the leading causes of health problems in the world. According to the National Institute on Alcohol Abuse and Alcoholism, alcohol drinking was prevalent in over 88 percent of people aged 18 and older (meaning a person has tried alcohol at least once in their lifetime), with 71 percent reporting that they drank in the previous year, and 57 percent reporting that they drank in the previous month. While alcohol drinking does not necessarily lead to cancer, it has been established that alcohol abuse or heavy alcohol drinking does. A shocking **25 percent** of the adult (18 years old and older) population report binge drinking in the past month with 7 percent reporting heavy drinking in the past month. [1]

These statistics should worry you, because alcohol and cancer, particularly liver cancer, go hand in hand. Repeatedly drinking alcohol causes the liver to become damaged and cirrhotic, because the liver is the organ responsible for filtering out the toxins from alcohol out of the blood. In return, the cells of the liver become damaged, which can eventually lead to mutation and cancer. Liver cirrhosis, a condition characterized by the irreversible damage to the liver, is a primary risk factor for developing hepatocellular carcinoma (HCCA) or liver cancer. [2]

According to a 2012 study conducted in Japan, heavy alcohol drinking by both men and women significantly increased the risk for acquiring primary liver cancer. [3] Chuang, et. al. in 2015 concluded that one alcoholic drink per day (meaning approximately 12 grams of pure alcohol per day) could increase your risk for liver cancer by 1.1 times - and this risk is cumulative. The more alcohol you drink, the more you become at risk for liver cancer. [4]

But i doesn't stop there! Consuming alcohol has also been linked to other cancers. Benzon Larsen, et. al. in 2010 found that alcohol intake was a risk factor for breast cancer. [5] Xu, et. al. in 2016 similarly found a link between alcohol intake and colorectal cancer, with alcohol causing cancer cells to become more aggressive and cause faster progression of the disease. [6]

Because alcohol can be addictive, we all have to be careful regarding our exposure to it. One drink can turn into two, two into three, and so on. However, for people who find that they do not wish to completely say no to alcohol, the "safest" amount to drink according to the Dietary Guidelines for Americans is

one drink for women and two drinks per day for men. [7]

And for those who say that red wine is good for you? Much of the benefit is in the grapes, not the alcohol. You can drink grape juice.

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42 - Artificial Sweeteners

In a world where sugar has gained a bad reputation for causing weight gain, many people have turned towards heavily-marketed “sugar-free” products and artificial sweeteners. However, are artificial sweeteners a healthy alternative? Strong scientific evidence suggests otherwise. Artificial sweeteners have been linked to multiple health problems – from problems with the body’s natural metabolism to cancer.

Recent studies have linked the use of artificial sweeteners to metabolic disease. A study published by Suez, et. al. and Shwiertz, et. al. in 2014 and 2009 respectively. Suez, et. al. found that artificial sweeteners cause more far-reaching efffects than making food tasted (allegedly) "better". When non-caloric artificial sweeteners (or NAS) enter the body’s digestive system, they cause a change in the normal flora or microbiota of the intestinal tract or gut. This disturbance causes the body to become intolerant to glucose, **which can cause persistent hyperglycemia and eventual diabetes - the disease you wanted to avoid in the first place by replacing sugar with NAS**! [1]

While diabetes does not directly cause cancer, it can help promote its growth because of the persistently high levels of sugar and insulin in the blood. According to research done by the American Diabetes Association, **there are specific kinds of tumors that are receptive to insulin, which can cause them to grow and spread rapidly, particularly in the case of breast tumors**. Similarly, problems with metabolism also contribute to hormonal imbalances, which have been associated with a higher risk for breast, endometrial, and other similar cancers. [2]

While the "official position" of the US FDA is that artificial sweeteners are safe, a study published in 2012 revealed a potential link between artificial sweeteners and leukemia and lymphoma in men – and while these results were inconclusive, the possibility of causation exists. We cannot discount that there are cases the link between artificial sweetener intake and cancer diagnoses in humans. [3]

If you want to watch your weight or want to manage your metabolism (with or without a diagnosed metabolic disorder), wean yourself off of your addiction to sweet foods. At the very least, opt for natural unwashed sugar or better sugar

alternatives like honey, which (**as long as it is genuine**) has significant antibacterial and anti-inflammatory properties.

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43 - Soft Drinks

Both carbonated and non-carbonated "**soft drinks**" are linked to a variety of metabolic disorders because of their high sugar content. People who drink a lot of sugary beverages are usually at high risk for diabetes. However, scientific study has demonstrated that there is concern that popular fizzy drinks can cause cancer.

Soft drinks have been directly linked or associated with a variety of cancers, according to a review of several studies done by Aune in 2012. Aune suggested a link between soft drink intake and risk for blood cancers like leukemia. The study was published by Schernhammer and found that soft drinks sweetened with artificial sweetener could increase a man's risk for non-Hodgkin's lymphoma, multiple myeloma, and leukemia. [1]

In a study published by Cuomo, Andreozzi, and Zito in 2014, **soft drinks were found to increase the risk for pancreatic cancer**. The study suggests that carbon dioxide produced by the drink inside the gastrointestinal tract could alter its cellular composition and cause the formation of cancer cells. Similar results were seen in a study by Mueller, et. al. in 2010, wherein the researchers found a statistically significant increase in pancreatic cancer risk among people who drank 2 or more soft drinks per week. [2][3]

Soft drinks are perhaps one of the worst food items you can include in your diet. Instead of grabbing a can of soda, try drinking fresh juice or water with mint or citrus fruits added instead. They are much healthier alternatives that taste as good, if not better.

References:

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44 - Food additives

Artificial food additives have long been linked with the development of various diseases – from heart disease to cancer. These additives are added to foods in order to prolong their shelf life and improve their taste – but at what cost?

Numerous recent publications have shed light on a variety of adverse health effects of food additives. There are hundreds of food additives in the market but here are a few to watch out for:

Sodium nitrite is a popular additive used in preserving meat, but it has been directly linked to liver cancer, specifically to the invasion and migration of liver cancer cells. [1]

Titanium dioxide (the same substance used in sunscreen) has been linked to colon cancer, forming tumors in the distal colon. [2]

Propyl gallate is an additive used in meats, popcorn, chewing gum, and a variety of other food items but has been found to cause cell death and DNA fragmentation, characteristics found in cases of cancer. [3]

Several food coloring agents have also been associated with cancer and other health problems by various studies: **Blue 2** was associated with statistically significant incidence of tumors, particularly brain gliomas, in male rats. **Green 3** caused significant increases in bladder and testes tumors in male rats. **Red 40** may accelerate the appearance of immune-system tumors in mice. The dye causes hypersensitivity (allergy-like) reactions in a small number of consumers and might trigger hyperactivity in children. **Yellow 6** caused adrenal tumors in animals, though this is disputed by industry and the FDA. [4]

While additives may improve the longevity and appeal of food, they bring a lot of health risks to the table. This is why the movement against preservatives has gotten so big over the last few years. When you go grocery shopping, choosing additive-free food may be an important way to protect yourself from cancer.

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45 – rBGH

rBGH (recombinant bovine growth hormone) is injected into cows, typically by larger scale dairy operations that maintain hundreds, if not thousands of milk-producing cows - to force their cows to make more milk than normal. This hormone is synthetic (meaning it was manufactured in a lab) and has been approved by the USA Food and Drug Administration **despite not being approved by the European Union, Canada, and other countries**. [1]

It is unsurprising that traces of the hormone have been found in the "inorganic milk" these cows produce – and this is where human health risk starts. In cows, rBGH causes an increase in IGF-1 (insulin growth factor) production, which is a substance very similar to insulin. This can cause problems with the body's metabolic process **and has been directly linked to a higher risk for both breast and prostate cancer**. [2][3]

These studies that link rBGH and IGF to cancer are the major reasons why other countries have banned the production of milk from rBGH-treated cows. Despite these measures around the world, the FDA **still continues to promote rBGH use in milk production**. Although major public awareness campaigns on rBGH and IGF have caused a decrease in demand for milk from rBGH-treated cows, this milk and its derivatives can still be found in the marketplace - because the FDA allows them! Be vigilant in choosing your milk and protect yourself from breast and prostate cancer. Choose brands that are rBGH free - including not only milk but other products that include milk.

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46 - Hydrogenated Oils

Many cooking oils are **hydrogenated** and have been heavily processed to prolong their shelf-life. **Hydrogenated cooking oils** undergo industrial processes wherein liquid oils are converted into a solid form through the addition of hydrogen. This kind of oil typically contains trans-fatty acids (a.k.a. trans fats), which, according to the Mayo Clinic are the worst kind of fats you can add to your diet. Trans fats increase your LDL or "bad" cholesterol – the kind that contributes to heart disease – and lowers HDL or "good" cholesterol. You can find hydrogenated oils and their trans fat components in numerous baked goods, junk food, fried food, some creamers, and margarine. [1]

In a study published in 2000 by McKelvey, Greenland, and Sandler, the **intake of hydrogenated oil was associated with an increased risk for colorectal adenomas**, a kind of cancer characterized by the formation of tumors in the colon and rectum. The researchers found that consumption of sweetened baked goods and other foods made with hydrogenated oil increased the prevalence of adenomas. [2] Because hydrogenated oils are likewise rich in trans fats, they also increase cancer risk in men and women.

Other studies focus on the dangers of trans fats and how they can cause various cancers. Laake, et. al. in 2013 found a link between trans fat consumption from partially hydrogenated vegetable oil and cancers of the stomach and breast. Chavarro, et. al. in 2008 found a link between trans-fatty acid levels in blood and increase in prostate cancer risk because of the increase risk for prostate tumors. [3][4]

There are many alternatives to hydrogenated oils such as grapeseed, coconut, and olive oil – all oils that are naturally occurring and do not undergo the ontroversial chemical processing of hydrogenated oils. You can also steam, boil, or even bake foods instead of frying them to reduce this cancer risk.

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PART 4 - CONSUMER PRODUCTS ASSOCIATED WITH CANCER

47 – Formaldehyde

Formaldehyde is a colorless **volatile organic compound** (VOC) that is used in a vast number of industrial applications and is found in an *enormous* number of consumer products. Formaldehyde is used in the production of household items like plywood, paper products, and disinfectants. It may be off-gassed from different items such as adhesive resins and foam insulation, in addition to being emitted from cigarettes and possibly some appliances such as wood stoves and gas heaters.

Off-gassing is the term given to when a volatile substance is given off gradually for some time after the manufacturing process is complete. [1] While these items are considered safe enough to be sold on the market, continued off-gassing of the formaldehyde used during the manufacturing process is now considered potentially dangerous to health.

Exposure to formaldehyde has been linked to a variety of cancers. This is now established as fact. In 2011, the International Agency for Research on Cancer and the US National Toxicology Program described formaldehyde as a **known human carcinogen**. A study published in 2015 by Yu, et. al. concluded that exposure to formaldehyde could cause toxicity in the bone marrow and lead to leukemia, a kind of cancer that affects the blood. This happens because the chemical causes changes in the genetic level in affected areas of the body, wherein "formaldehyde-induced genotoxicity" causes oncogenesis or the formation of cancer cells. Several studies have linked formaldehyde to cancers that affect the nasopharynx, lungs, and bones. Because off-gassing into human environments readily allows formaldehyde to enter our bodies, taking necessary precautions when purchasing items for the home is a must. [2][3][4]

Owing to its widespread use, you might have a difficult time removing

formaldehyde-emitting products from your home entirely; it is a bigger problem ever before now that modern homes are much more draft proofed than ever before for energy efficiency purposes - meaning that the level of off-gassed toxins in indoor air can build up.

While the levels of the chemical in the environment may not be enough to cause short-term health problems, chronic exposure to formaldehyde (over a period of time) may potentially cause cancer. When you choose items for your home, try to select ones that are not made with formaldehyde-containing / off-gassing components. Plywood, memory foam and new cars are notorious. Keep a window open during the day or have an efficient exhaust system that allows fresh air to circulate through your home. VOC-removing air purifiers can be another option to keep your air fresh and clean; although these are expensive, they are less expensive than illness!

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48 - Cleaning Supplies

Cleaning supplies play a surprising role in our exposure to cancer-causing toxins. According to research done by the International Agency for Research on Cancer, as many as **73 recognized chemicals found in consumer products and even in food are listed by the IARC as mutagenic**, meaning they cause changes in the body's cells - possibly creating cancerous tumors in different organs of the body. [1]

Studies have linked the regular use of cleaning supplies at home to specific kinds of cancer. One was published in 2010 in *Environmental Health* by Zota, et. al. The researchers found that self-reported exposure to chemicals was directly linked to breast cancer risk – the higher the exposure, the higher the risk. In fact, the risk was twice as high for women who used cleaning products compared to those who didn't. This study has received criticism, wherein a factor called "recall bias" was questioned. Recall bias happens when a person has a preconceived notion that chemicals from cleaning supplies cause cancer, leading to a higher reported usage. On the other hand, it is still a positive correlation and so should not be immediately dismissed. [2]

And there are of course other studies: Specific chemicals such as **organochlorines, solvents and detergents found in cleaning products, air fresheners, and cosmetics** have all been linked to endocrine problems and cancer. This was seen in a 2012 study by De Coster and van Larebeke. **Tetrachloroethylene**, a chemical used in dry cleaning, was discovered to increase bladder cancer risk as well and The IARC has classified tetrachloroethylene as a Group 2A carcinogen, which means that it is probably carcinogenic to humans. Another solvent used in cleaning called **bromopropane** has been linked to lung cancer, causing changes in lung tissue when inhaled. [3][4][5]

There are numerous natural agents that have good cleaning properties. Apple cider vinegar for example is a natural disinfectant, able to get rid of stains and smells in your kitchen or bathroom. Remember to dilute ACV in a little bit of water to prevent the tile or wood from eroding or becoming damaged. Here is a full list of simple cleaning formulas you can make at home that avoid many of these ingredients.

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49 – Teflon

The popularity of non-stick cookware took off with the discovery of **Teflon** in the 1930s. Infomercials in the 90s and 2000s further boosted the popularity of Teflon frying pans and pots, and similar non-stick cookware coated with other chemicals.

Teflon is a consumer brand name for a chemical compound called polytetrafluoroethylene or PTFE - a substance that has been linked to potential carcinogenicity. A study in 2013 found that workers who handled TFE were exposed to higher risks for liver, kidney, and blood cancers. [1]

Another substance involved with the production of Teflon and Teflon-coated products is PFOA – or perfluorooctanoic acid. Research done by the American Cancer Society has found links between PFOA and cancers of the liver, testicles, breasts, and pancreas – creating tumors in those organs. In studies involving human workers exposed to PFOA during the manufacturing process had higher risks for testicular, kidney, and thyroid cancer, as well as cancers of the prostate, bladder, and ovaries. [2]

While using Teflon and non-stick cookware may seem time-saving and more "health conscious" because you don't use as much oil, you are exposing yourself to man-made chemicals with clear links to cancer. Instead of using coated-cookware, opt for ceramic, cast iron, high grade stainless steel or glass cookware which do not expose you to the harmful effects of PTFE or PFOA.

Also worthy of note is that Teflon kills birds. It has been known for *decades* that **under ordinary cooking conditions**, Teflon-coated and other non-stick cookware can produce fumes that are highly toxic to birds such as canaries and can kill them. [3] If that small amount of fumes is enough to kill a pet bird it does not bode particularly well for human use.

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50 – Plastics

There has been much recent spotlight on the dangers of **plastic** usage, particularly exposure to a cancer-causing agent called **Bisphenol-A (BPA)**. Studies have shown that BPA can affect the body's hormones, which can disrupt normal processes and contribute to the development of cancerous mutations.

However BPA is not the only chemical of concern in the world of plastics. At the bottom of a plastic bottle or container, you will find a triangle with a number, which can be anywhere from one to seven. With the symbol you see, you can learn which type of plastic you have in your hand and just how safe - or how unsafe - it might be.

Number 1: Known as PET or PETE, this plastic should only be used once. This is because reusing PETE can expose people to a chemical substance called EPA. The plastic could also possibly emit antimony, which is a heavy metal that can interfere with the hormones in the body. The antimony-leaching effect was found to be stronger if the bottled water was exposed to warm temperatures. [1] **It is also possible that PETE plastic is carcinogenic**.

Number 2: If you find a triangle with the number "2" in it, the bottle is known as HDPE or HDP, which is considered "the good plastic". It is named so because it doesn't have as much leaching as the other types of plastics when in contact with water.

Number 3: Also labeled as V or PVC, the number 3 in the bottle means that it has two toxic chemicals that can both influence the hormones in the body. Still, PVC is the most used type of plastic around and contains phthalates, **including often the carcinogenic phthalate DEHP** (see our note on Phthalates below).

Number 4: LDPE plastics have the number 4 and have low chemical emissions. LDPE is widely used for plastic bags.

Number 5: PP (polypropylene) or number 5 plastics are also considered good for food use. PP plastics are common in yogurt pots and syrup bottles.

Number 6: PS (polystyrene aka styrofoam). One of the bad ones. This has been

found to emit styrene, especially when hot. Styrene is carcinogenic and considered a notoriously toxic chemical linked to numerous negative health effects. [2] Despite this, polystyrene is still widely used in fast food packaging as well as in coffee cups. Polystyrene is also a serious environmental pollutant, not widely recycled and taking 500 years to decompose - an ecological nightmare.

Number 7: Finally, "everything else" is in this category where they are known as PC. You should not trust plastics without labels or marked #7 because they may emit BPA, which is a very harmful chemical. Unfortunately, PC plastics are still common in containers for food, sports drink bottles, and worse, infant bottles.

There are some compounds found in many plastics that are thought to contribute towards risk of cancer.

Dioxins are not directly found in plastic containers but there are byproducts that are released into the environment during plastic production. According to the WHO, dioxins are environmental pollutants released into the air after industrial processes and can end up in soil, sediments, and even food like dairy products, meat, and seafood. They are considered carcinogenic by the IARC and primarily cause cancers of the lung and soft tissues. [3][4] Dioxins are problematic because despite typically only being found in very small trace amounts (and thus difficult to detect) they are extremely toxic and the amounts that can cause problems are miniscule.

Phthalates, specifically **DEHP or Di(2-ethylhexyl) phthalate**, are substances found in plastic and is considered by the IARC to be possible carcinogenic in humans. DEHP affects the liver, kidneys, and reproductive systems, but is not considered dangerous at low levels. However, consistently using plastic containers with this phthalate can increase your exposure and possibly your risk for cancer. DEHP can also be found in plastic medical tubings, shower curtains, garden hoses, rainwear, and even plastic toys for children. [5]

Bisphenol-A (BPA) is a weak synthetic estrogen, which can act as a hormone disruptor. In a study conducted by Konieczna, Rutkowska, and Rachon in 2015, BPA was shown to play roles in reproductive health disorders including infertility in both sexes and the development of tumors associated with breast and prostate cancer. Paulose, et. al. in 2015 found that fetal exposure to BPA increased the risk for breast cancer as well. Limiting your exposure to plastic can reduce your exposure to BPA (and other carcinogenic substances) and help

prevent cancer. [6][7]

If you do use plastics, be sure to use them correctly! Heating food in a plastic container containing BPA or phthalates is more likely to result in your food becoming contaminated with these harmful chemicals. Allowing plastics to come into contact with detergents can also result in these chemicals being released. If possible, switch to BPA-free containers like glass to keep your food safe from harmful chemicals. They not only last longer than plastic, but are safer for the environment and human health.

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51 – Phthalates

Phthalates are a group of man-made chemicals used in making plastic and solvents. They can be found in a variety of plastic items – from food containers to medical grade intravenous tubings. We are constantly exposed to phthalates through the various plastic items (and even cosmetic products!) in our daily lives and it has practically become impossible to avoid plastic things because they are widely used as containers and packaging. But why should you avoid phthalates? How toxic exactly is this group of chemicals? Very!

There have been **several recent publications over the recent years that link phthalate exposure to different cancers**. In the past, the International Agency for Research on Cancer classified phthalates as potentially carcinogenic substance, but not anymore. This is strange, considering the negative results of the following studies:

- Chen and Chien in 2014 found that phthalates, even at very low concentrations, caused the proliferation of breast cancer cells. The study suggested that the government revise its evaluation of phthalate use in plastic production. [1]

- The results of a study published by Lee, Hwang, and Choi in the same year (2014), found that phthalates activated a pathway that promoted the progression of prostate cancer. [2]

- Erkekoglu and Kocer-Gumusel also published a study in 2014 that exposed the genotoxicity of phthalates, showing how they caused DNA damage – a characteristic of the progression of cancer. [3]

It is perhaps surprising how the IARC took back its classification of phthalates as a carcinogen despite the results of these scientific studies. In the light of the other results it makes sense to limit your exposure where possible. Do your best to avoid items made of plastic to reduce your phthalate exposure - especially with packaged foods - and turn towards paper and cardboard packaging where possible. You are not only protecting yourself from cancer, you are also helping the environment (since plastic isn't biodegradable)!

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52 – Talc

Talcum powder, aka “talc”, is widely regarded as one of those consumer “home essential” products that most people have in their home.

What's interesting is that despite dusting themselves with it, most people don't even actually know what talc is! Talc is actually a mineral, scientifically called hydrous magnesium silicate - which has the chemical formula $H_2Mg_3(SiO_3)_4$. [1]

Talc has many industrial applications in the production of paper, plastics, paint and coatings, rubber, and even electrical cables, but its most common home use is as a face and body powder to keep the skin dry. Because talc is able to absorb moisture and odors, it is often used on babies and children to prevent diaper rashes.

With over 14,000 deaths in the United States each year, ovarian cancer is still considered relatively rare - but is the most lethal gynecologic cancer. **Various studies have linked the occurrence of ovarian cancer with the use of talc**, and this is no joke - with one major manufacturer being found guilty and ordered to pay millions in compensation to cancer victims. Yet one still finds talcum powder widely available. [2]

Suspicions arose decades ago about the possibility that its use contributes to certain types of diseases, mainly cancers of the ovaries and lungs, the latter due to talc inhalation by industrial workers during manufacturing processes. Various studies have found a positive correlation to cancers stretching back over 25 years! Did you know that in 1994, the Cancer Prevention Coalition (CPC) submitted a citizen petition to the FDA seeking labeling on all cosmetic talc products? The requested labeling was a warning that talcum powder causes cancer in laboratory animals; frequent talc application in the female genital area increases the risk of ovarian cancer. This petition was denied. [3]

In the 2010 monograph published by the IARC, a study showed a **30 to 60 percent increase in ovarian cancer risk among people who used talc body powder compared to people who didn’t**. While the IARC states that they could not rule out pure chance as a factor, the trend was consistent among all the other studies - with risk percentages at a statistically significant 30% or higher. [4]

These statistically significant increases in cancer risk of no less than 30% should make everyone wary of using talc on their bodies and loved ones. In fact, the American Academy of Pediatrics has constantly warned against the use of baby powder because of the numerous cases of powder aspiration among children. [5]

However ***despite all this*** the IARC: still lists talc under Group 3: "Not classifiable as to its carcinogenicity to humans." [6] *Not classifiable?* What this actually means is defined as follows:

"This category is used most commonly for agents, mixtures and exposure circumstances for which the evidence of carcinogenicity is inadequate in humans and inadequate or limited in experimental animals. Exceptionally, agents (mixtures) for which the evidence of carcinogenicity is inadequate in humans but sufficient in experimental animals may be placed in this category when there is strong evidence that the mechanism of carcinogenicity in experimental animals does not operate in humans. Agents, mixtures and exposure circumstances that do not fall into any other group are also placed in this category." [7]

For a simple alternative to talc for gentle skin drying - you can opt to use cornstarch instead. However, please take note of cornstarch found in the USA and some other countries that is made from GMO corn. If you are concerned about that (as you should be!), **simply make sure to purchase organic or non-GMO cornstarch**.

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53 - Fluoridated Water

In a move to address the growing problem of poor dental health, **water fluoridation** – quite literally adding fluoride to public sources of drinking water - was started in the 1940s, although research started much earlier than that (around the early 1900s). Fluoride research was started by Dr. Frederick McKay in 1901 after researching dental hygiene habits among people in Colorado Springs and discovering that in areas with higher fluoride levels in water, people had fewer cavities.

However, adding fluoride (a highly toxic substance) to drinking water may have other consequences. [1] Dr. Dean Burk, one of the 1937 co-founders of the US National Cancer Institute (NCI), **denounced water fluoridation in the strongest possible terms, calling it "public murder on a grand scale."** He stated that the **fluoridation of water causes cancer** and that the research was **"one of the most conclusive bits of scientific and biological evidence that I have come across in my 50 years in the field of cancer research…. It should be the end [of fluoridation of drinking water] by Federal Law known as the Delaney Amendment, which says that anything found to induce cancer in man or animals cannot legally be put into the food or drink of man or animals."** [2]

According to the American Cancer Society, public awareness on increased cancer risk due to fluoride intake is largely centered on a higher risk for osteosarcoma, a kind of bone cancer. A working theory is that fluoride has a tendency to collect in bone, specifically in areas of growth ("growth plates"). Fluoride causes bone to grow rapidly, which can cause cancerous mutations to form. [3]

In a 2011 study published by Sandhu, et. al., the researchers focused on serum fluoride levels in patients diagnosed with osteosarcoma. According to the results of the study, mean fluoride concentrations were significantly high in patients with osteosarcoma, suggesting that the mineral plays a role in the development of bone cancer. In fact, the results of the study show that **50% of the people with high levels of serum fluoride had osteosarcoma**. [4]

This is a highly controversial area and other studies have concluded that there isn't a *definite* link between fluoride intake and cancer. Because science is undecided, the public has to make their own choices regarding fluoridation of

public water sources that supply their homes.

Here are a few steps you can take to protect yourself from water fluoridation and increased cancer risk:

1) The information on fluoridation is publicly available. First of all, ascertain the fluoridation level in your local area. A Google search should enable you to find out whether your tap water is fluoridated. You could also head over to your local water unit and ask for information regarding water fluoride levels.

2) Fluoride can be removed from drinking water by reverse osmosis or distillation, however these processes also remove other minerals that may be valuable. You can opt to have special water filters in your home that filter fluoride from your water; these filters may also give you the option of adding back specific minerals that were lost during the filtration process.

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54 – Asbestos

Asbestos is a not a single substance but rather a set of six silicate minerals that naturally occur in our environment. This group of minerals naturally forms thin, fibrous "threads" that have a special quality of being able resist damage and destruction by heat, direct fire, or chemicals. They are also non-electroconductive. These physical properties led to the widespread use of asbestos in the construction of buildings in the 20th century. However, dust from these "mineral threads" of asbestos can easily be inhaled and settle in the lungs. **It has been clearly established as fact that prolonged inhalation of asbestos fibers can cause fatal illnesses including lung cancer and mesothelioma**.

The United States and Canada are among the few developed countries to not completely ban asbestos, which is still widely used in some consumer products including clothing, pipeline wraps, vinyl floor tiles, millboards, cement pipes, disk brake pads, gaskets and roof coatings. [1]

The dangers of Asbestos were brought to light around the 1970s and the US Consumer Product Safety Commission banned the use of asbestos in the construction of fireplaces and patching of walls. By 1989, asbestos was banned from being used in new products, though asbestos-containing products created before 1989 are still legally sold in the market. [2]

Different studies have found strong links between inhaled asbestos and lung cancer risk. Świątkowska, et. al. in 2015 published a study that confirmed the strong evidence associating asbestos exposure with increased risk for lung cancer. Similar results were seen in Wu, et. al.'s 2015 publication, where high levels of exposure to asbestos lead to increased incidences of cancer of the esophagus, trachea, bronchus, and lungs. Many other studies in the past and present confirm the same findings – that asbestos use is dangerous and can lead to cancer. [3][4]

Many older homes still contain significant amounts of asbestos, however it is regarded as unsafe for the homeowner/occupier to remove the asbestos as this can generate significant dust. Dust may also be generated where the products are deteriorating due to age. It is generally advised not to mess with asbestos but seek professional assistance. Asbestos removal and disposal may require trained

professionals, safety equipment/clothing and be subject to legal restrictions. Also, asbestos waste is typically disposed of as hazardous waste.

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55 - Cocamide DEA

Cocamide DEA is a popular ingredient used in shampoo, bath oils, and other skincare items on account of its "moisturizing capabilities". However, cocamide DEA has been studied by the IARC and the Center for Environmental Health in California and found that this substance has been linked to the spontaneous eruption of cancerous tumors. The scary part is that cocamide DEA (or diethanolamine) from coconut oil is used by major companies in the production of their products - the CEH even names these companies: Palmolive, Palmer's, and Toys 'R' Us. [1]

The IARC has labelled cocamide DEA as a carcinogen because of the results of a study conducted on test mice. **After dermal application of cocamide DEA, there were incidences of liver and kidney tumors (hepatocellular carcinoma and renal tubular adenoma) among the mice**. The researchers state that these kinds of tumors are highly unusual and suggested that cocamide DEA could thus have potentially carcinogenic effects on humans.

While there are currently no studies that link to incidences of cancer in *humans* from cocamide DEA, research has shown that use of this substance has led to severe cases of contact dermatitis – and although this allergy is rare, it has been reported when a person is exposed to high levels of cocamide DEA (especially among workers who handle cocamide DEA on a day-to-day basis). [2][3][4]

The next time you purchase your shampoo, **take a look at the ingredient list** first! Since cocamide DEA is still an FDA-approved substance, there is no stopping big companies from including it in your shampoo and other skincare products.

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56 - Mineral oils

Mineral oils have gained the bad reputation of blocking your skin's pores, leading to blackheads and pimples (which is why the beauty gurus of the world advise against make-up and skin care with mineral oil). **Mineral oil is also considered a known human carcinogen by the IARC and the American Cancer Society**, with newer studies confirming previous notions that this substance can cause cancer in the human body. [1]

The earliest reported cases of cancer and links to mineral oils was as set of reports from the 1960s, where 100 cases of scrotal cancer were reported after skin exposure to mineral oil. In the 1980s, human carcinogenicity was seen in a group of Swedish metal workers (four were affected versus the zero expected number of cases). In 2005, Zhao, et. al. found that male aerospace workers exposed to mineral oil had a higher risk for skin cancer (melanoma). [1]

A recent study published in 2014 concluded that mineral oil induced the formation of plasmacytomas (tumors forming in soft tissue or bone) and caused mutation inside the cells. A case study in 2015 also confirmed mineral oil's role in bladder cancer risk, calling the substance a bladder carcinogen. The IARC also lists the following cancers with links to mineral oil exposure: laryngeal cancer, pancreatic cancer, and lung cancer. [1][2][3][4]

In order to reduce your risk, be sure to peruse carefully the list of ingredients in your skin care, make up, household cleaners, lubricants, and similar substances that could potentially contain mineral oil. Be concerned about your skin looking its best but be *more concerned* about your risk for cancer.

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57 - Triclosan (Antibacterial Soap Ingredient)

For several years, the public has been taught to believe that using **antibacterial soaps** on a daily basis is "necessary" to fight germs. (This of course being after millions of years of having evolved without them). However during the latter half of 2013, public concern was raised over both the effectiveness and safety of antibacterial products, specifically the ingredient **Triclosan**. In response to this, the US FDA required manufacturers of antibacterial products to provide data proving the effectiveness of their products versus plain soap and water.

Three years later, the FDA released a statement regarding antibacterial soap - "Skip it". **The FDA consumer update published in September 2016 states that over-the-counter antibacterial products with antibacterial ingredients like Triclosan (and Triclocarban) should not be marketed towards consumers. After their 2013 request, the FDA did not receive satisfactory evidence that Triclosan and other ingredients like it were safe for daily use by the public, and also concluded that these antibacterial products *did not perform any better than plain soap* in fighting infection!** [1]

It's official: According to the FDA, antibacterial formulas don't work better than regular soap and hot water.

But of course, it gets worse: **Studies have revealed links between Triclosan and cancer.** Several animal studies showed that triclosan caused fetal bone malformations in mice and rats, which may hint at hormonal effects. Triclosan has also been found to cause estrogenic activities in human breast cancer cells, which may stimulate the growth and development of cancer cells. The chemical has also been found to impair muscle function in both humans and animals, and is linked to an increase in allergies among children. According to a review of literature by Dinwiddie, Terry, and Chen published in 2014, there are **several studies** that suggest that Triclosan could increase a person's cancer risk. [2][3]

One of the main reasons why the public became worried about the daily use of Triclosan was that this particular ingredient has been shown to **bioaccumulate** - meaning it accumulates in the human body after consistent, prolonged use. It readily penetrates your skin and enters your bloodstream much more easily than was once thought, and **it is now found in the majority of Americans - having been found to be widespread in blood, breast milk and urine**. [4] **It is also detected in waterways because it washes straight down the drain** and some of it survives waste water treatment processing. Because Triclosan is fat-soluble — meaning that it builds up in fatty tissues — scientists are concerned that triclosan from environmental sources may travel up the food chain and appear at greater levels in the tissues of animals higher up the food chain i.e. us humans.

Triclosan isn't only found in antibacterial soap; it's also used in dish detergents, body washes, cutting boards and cosmetic products like lipsticks and skin care products. It is a very popular ingredient because it is believed to be able to help keep an item bacteria-free - but that isn't necessarily the case when Triclosan is used by humans.

According to the FDA and WHO, the best way to fight bacteria is with good hand hygiene using plain ole' **soap and hot water**. Remember the CDC's slogan - "Clean hands save lives". Clean your hands before and during food preparation, before and after eating, after going to the toilet or touching body fluids (including changing diapers, sneezing), after touching your pets - basically any activity that can dirty your hands and can cause the spread of bacteria. [5]

As for kitchen hygiene? A study at Virginia Polytechnic Institute and State University found that **misting 3% hydrogen peroxide followed by misting with vinegar killed virtually all Salmonella, Shigella, and E. coli bacteria on heavily contaminated food and surfaces.** Using one after the other (separate spray bottles) was found much more effective than mixing them together.

Another effective alternative for surface cleaning is to use natural tea tree, eucalyptus and/or lemongrass essential oils. These have been found to have potent antibacterial properties. [6] To utilize on household surfaces, add 10-20 drops to a spray bottle of warm water, shake well, then spray 'n' wipe as normal. Essential oils also have the advantage that they appear **not** to generate resistant bacteria over time.

Further Reading:

5 Urgent Reasons Why You Should To Stop Using Antibacterial Soap Immediately

References:

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58 – Some Art Supplies

Certain art supplies contain toxic substances that are unsuitable for children's use. The *Federal Hazardous Substances Act* actually requires all art supplies to undergo a toxicological review and be labeled with potential health hazards. [1] There are specific guidelines from the Office of Environmental Health Hazard Assessment (an agency under the Environmental Protection Agency) when you buy and use arts and crafts supplies for children, especially supplies for specific age groups. [2]

This is because art supplies must only be used in a way that prevents exposing the child to dangerous, potentially cancer-causing chemicals. These kinds of supplies are targeted towards children aged 12 and up, since it is assumed they can read and follow simple directions on product packaging. [2] The Environmental Protection Agency strictly bans the use of Elmer's Super Glue, Krazy Glue, and various other art and craft materials in kindergarten until sixth grade. [3]

The US Consumer Product Safety Commission published an Art and Craft Safety guide and included information on supplies that contained substances that could cause cancer: [4]

- Working with **ceramics and clay** can expose your child to **asbestos**, whose inhalation has been linked with cancer, as well as skin irritation and lung infections.

- **Pottery glazes** are made with a mixture of silica, fluxes, and colorants which have been associated with cancer through exposure to arsenic, beryllium, chromium VI, nickel, and uranium.

- Using **pastels** can expose you to pigments (like lead chromate in chrome yellow) which have been linked to lung cancer and skin irritation.

- Certain stones also contain crystalline silica and asbestos, which can contribute to cancer.

- Metal colorants can contain nickel and chromium VI as well.

If you have children at home who like to do art, **remember to buy non-toxic art materials**. Also, use any solvent based products (i.e. glues, sharpies) in a well-ventilated area to prevent fumes from building up in a small, confined area. Most importantly, supervise your children when they use art supplies!

References:

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[2] Office of Environmental Health Hazard Assessment. Art and Craft Materials In Schools: Guidelines for Purchasing and Safe Use. (2016). http://oehha.ca.gov/education/art/guidelinesforart.html

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59 - Air Fresheners

A large number of people utilize air fresheners, which are marketed to keep your home smelling clean and fresh. However, air fresheners contain a variety of chemicals, some of which can detrimentally affect a person's health.

The state of California **actually lists common constituents of air fresheners as carcinogenic to humans**, and certain constituents can actually produce dangerous secondary pollutants classified as HAPs or hazardous air pollutants by the US federal government.

Nazaroff and Weschler in 2004 listed several toxic air contaminants that produce carcinogenic pollutants - such as some terpenes, which produce formaldehyde, hydroxyl radicals, and nitrates. [1] A further study published in 2010 has **linked air freshener use with the development of breast cancer**. The study used a self-reported recall method, wherein subjects were asked to assess their chemical exposure and talk about their beliefs regarding diseases causation and breast cancer risk. The results suggest a significant link between exposure to air fresheners and breast cancer prevalence. However, the researchers do identify *recall bias* as an extraneous factor that *could* affect the results. [2]

The best possible air freshener is of course *fresh air!* Consider also VOC air purifiers - which remove volatile organic compounds and odors from the air - such as the **highly rated Aller 5000** (Amazon link)

If you desire a good fragrance around the home, instead of using toxic synthetics, a simple alternative would be to use essential oils. There are plenty of essential oils in your local health food store, herbal shop or online that you can add to oil diffusers, candles, humidifiers, or incense sticks.

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60 - Vinyl chloride

Vinyl chloride is a colorless gas that is a by-product of industrial processes that involve the production of plastic items. Primarily, vinyl chloride is used to make PVC – or polyvinyl chloride, a type of plastic. However vinyl chloride has been linked to different kinds of cancers among industrial workers and **has been confirmed as a human carcinogen by the IARC**. The IARC reports that **exposure to vinyl chloride is linked to liver, brain, lung, and blood cancers**. [1][2]

There have been plenty of studies published over the years that focus on the carcinogenicity of vinyl chloride, with one of the latest (and most significant) published in 2011 by Hsieh, et. al.. The researchers focused on factory workers who handled PVC and were exposed to vinyl chloride. The retrospective study followed workers for 15 years after their initial exposure at the manufacturing factory. The results were conclusive – vinyl chloride could increase liver cancer and leukemia risk among people exposed to the gas. The researchers found that when exposure was controlled in the same worksites, the risk for cancer was significantly reduced. [3]

If you aren't a factory worker, you can still become exposed to vinyl chloride through the air and water, especially if you live next to a factory that produces PVC. Vinyl chloride can end up in groundwater and the air surrounding the factory and cause an increase in cancer incidence in the area. That contaminated water can end up in your laundry or shower, or even worse, in your drinking glass! Other forms of exposure are more commonplace – for example PVC shower curtains, which can off-gas, especially in the presence of steam. These can also emit phthalates (see chapter on that) and there have even been calls for them to be banned.

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61 – Antiseptics

Whenever we get a cut or a similar injury, we have been conditioned to do three things: (1) wash the area with clean water and soap, (2) use some antiseptic, and (3) use a band-aid. While numbers one and three are regarded safe, there have no been some safety concerns with the use of antiseptics. Antiseptics come in a variety of forms, from liquid solutions to cream and ointment, but they typically work the same way - they have antibacterial action and prevent infection at the site of the injury.

Auramine, a popular chemical ingredient in antiseptic products, has raised red flags. There have been several studies on auramine exposure and how it can lead to cancer, with the **IARC declaring auramine as a possible carcinogen to humans and auramine *production* as a *definite* carcinogen to humans**. Martelli, A., et. al. found that **auramine caused liver cancer in both animal and human liver cells**. According to Case and Pearson, women who were exposed to auramine production developed urinary tumors. Similar results were seen in Kirsch, et. al.'s study on auramine workers, where bladder cancer-related deaths were identified. [1][2][3][4]

While antiseptics play a big role in fighting off infection-causing microorganisms, there are several alternatives you can turn to that do not increase your risk for cancer. Many doctors now advice that water, perhaps with mild soap, is the best immediate thing to clean a wound and that isopropyl alcohol and hydrogen peroxide, while certainly disinfecting, may damage the tissue.

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62 – Sunscreen

Exposure to the dangerous ultraviolet rays of the sun can significantly increase your cancer risk, aside from causing premature skin aging and discoloration. You will often hear advice to protect yourself from skin cancer by (1) avoiding sun exposure, (2) wearing protective clothing, and most importantly (3) using sunscreen. But stop right there! **Sunscreen can contain highly toxic chemicals that are now possibly thought to increase the risk of skin cancer!**

Most sunscreens contain toxic ingredients or endocrine disrupting chemicals that may actually *promote* skin cancer growth and free radical production in the body – the exact opposite of protecting you from cancer. The Environmental Working Group found that over 75% of sunscreens on the market contained harmful, potentially cancer-causing chemicals.

One example: According to EWG, certain laboratory studies show that some chemical UV filters found in sunscreen can "mimic hormones" which disrupt the balance in the human body and may cause cancer. The CDC has actually found **oxybenzone**, a chemical used in many sunscreens, **in over 96 percent of the US population** - a worrying statistic given that **oxybenzone exposure could cause carcinogenesis**. Take note: this chemical can be absorbed into the blood and is known to show up in breast milk as well. [1]

Note however that oxybenzone is only the #1 chemical on the EWG's list. There are several others that it would be prudent to be aware of. EWG have published a full chart with a safety score of numerous sunscreen ingredients and this is available at the link [1].

Our best tip would be to limit sun exposure through simple methods such as shade structures, parasols, wide brimmed hats and long, loose clothing. It is also possible to make sunscreens that use only natural ingredients.

Reference:

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PART 5 - ENVIRONMENTAL TOXINS

63 – Pesticides

As the demand for food grows with every additional person to the world's population, so does the need for improved agricultural practices to increase the yield of fruits, vegetables, and livestock. The use of pesticides on fruit and vegetables crops is extremely widespread. While pesticide use is legally allowed by the FDA, the risk of disease and death are still present in pesticide-treated crops. It's no secret; the WHO encourages the public to improve their knowledge on how pesticides can harm their health and the health of their loved ones. [1] We have presented several of the most well known and controversial pesticides in the chapters below this one.

Pesticide drift and its implications should be understood. Areas with pesticide-treated crops place the people who live around them at risk for acquiring cancer (and other diseases!) because the chemicals "sprayed" on the crops and the soil can drift through the air and end up in people's homes, schools, places of work and more. A study in 2011 found that people who lived and worked in agricultural areas had the highest risk for pesticide illnesses caused by off-target pesticide drift. In fact, 92% of almost 3,000 cases experienced low-severity illness, with half of the cases getting exposed at their workplace. 14 percent of these cases were children. [2]

Recent publications **have now linked exposure to pesticides to increased risk of breast cancer**, seen in a publication in 2013 by El-Zaemey, Heyworth, and Fritschi. Even more worrying are publications that show **an increased risk for childhood cancers like leukemia, neuroblastoma, Wilms tumor, soft-tissue sarcoma, non-Hodgkin's lymphoma, and cancers that affect the brain, colorectum, and testes**. [3][4][5]

When choosing your home, workplace, and the school your child goes to, don't forget to study weather patterns to learn the prevailing wind direction in your locality, and research nearby commercial areas and farms that can expose yourself and your family to an increased risk for cancer through pesticide drift.

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64 – Roundup

One of the world's most common pesticides is "Roundup", which is sold in great quantities to farmers who grow large-scale GMO "Roundup Ready" crops. These have been genetically modified to be resistant to roundup, which has a broad-spectrum plant killing action. Thus roundup can be sprayed from a plane onto GMO crop fields, killing everything except the GMO plants – including microorganisms that transport minerals from the soil to the plants. Of course, this ecological destruction is absolute madness and is turning once-biodiverse countryside into a wasteland - but that doesn't stop them because there are billions of dollars on the table and they always have the old playing card of "feeding the world" at the ready.

Roundup (or Glyphosate, its chemical name) is a weed killer because it stunts the growth of weeds by altering protein production. Because it is the second most popular pesticide in the US, it can be found everywhere - from produce at the local supermarket and even inside your own garage or garden shed. This is problematic because recent studies have shown strong links between Roundup exposure and specific types of cancer. [1]

In a now-famous statement in March 2015, the IARC declared glyphosate as a "probable human carcinogen" and have fought ongoing battles against manufacturers to maintain their classification. The State of California has now successfully defended its legal right to label Roundup with this information.

Studies have shown clear links between glyphosate and non-Hodgkin's lymphoma in humans. **Eriksson, et. al. in 2008 confirmed the association between non-Hodgkin's lymphoma and glyphosate exposure.** Furthermore, over a review of 25 years' worth of research published in 2014, Schinasi and Leon found that glyphosate exposure was significantly linked to B-cell lymphoma. [2][3][4]

Sadly, glyphosate is everywhere. **A study funded by the US Geological Survey found glyphosate in majority of rivers, streams, and other bodies of water**. The chemical was also detected in *70 percent* of rainwater samples. [5]

Despite these clear warnings, the Environmental Protection Agency concluded that the IARC declaration was supported by insufficient evidence and that glyphosate posed very minimal dangers to human health. One has to wonder who they are actually protecting: We cannot discredit the studies and IARC's classification of the carcinogenicity of this chemical! National Geographic released an article in 2015 saying that despite mixed responses to Roundup use, humans should remain wary of the long-term effects of glyphosate because much is still left to be studied and discovered. [1]

Most recently, a gigantic lawsuit is taking place (May 2018) with some 4,000 plaintiffs suing Monsanto, alleging exposure to Roundup caused them, or their loved ones, to develop non-Hodgkin lymphoma (NHL). [6]

In the meantime, it is wise to eat organic, which has been demonstrated, unsurprisingly, to reduce pesticide levels in the body.

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https://www.theguardian.com/business/2018/may/22/monsanto-trial-cancer-weedkiller-roundup-dewayne-johnson

65 – Atrazine

Atrazine is a widely used pesticide, popularly used in the United States on corn, pineapple, and sugarcane crops. However, it is classified as a Restricted Use Pesticide because of its ability to contaminate groundwater and on account of its **links to cancer**.

Animal studies have linked atrazine use to an increased risk for cancer, with the IARC **classifying it as group 3** - with sufficient animal evidence but insufficient human evidence. [1] With the growing spotlight on the adverse health effects of cancer, atrazine use on plants – especially edible crops – is becoming more controversial. [2]

There have been no significant studies that directly link atrazine exposure with cancer occurrence in humans. Despite that, **there *are* studies that show an increase in the risk for specific types of cancer, such as thyroid and prostate cancer, among people who have been exposed to atrazine**. An AHS study in 2011 actually found that **farmers who used atrazine were at higher risk for thyroid cancer**. In animals, **atrazine exposure caused the growth of mammary tumors** because they affected the animal's hormones. [3]

In 2015, Albanito, et. al. published a study whose results showed that **atrazine had an effect on hormones in the body that caused the growth and spread of cancer cells and cancer-associated fibroblasts.** The same results were mimicked in a 2016 study by Hu, et. al., wherein **atrazine was seen to promote the proliferation of prostate cancer cells**, causing malignant tumors to grow in size and multiply in number. [4][5]

When buying produce, be sure to avoid ones that have had pesticide sprayed on them. Go organic instead.

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66 – Chlordane

Chlordane is an insecticide that was first introduced to the public in 1948. However, due to numerous reports of toxicities in humans, its use as a pesticide was banned by the Environmental Protection Agency in the United States in 1988.

Now that might seem like it is so long in the past that there is nothing to worry about any more, but that would be incorrect: Chlordane is **an extremely persistent chemical that can take decades to break down.** In 2016 the EPA reported that it can **STILL end up in food grown on American soil**, because farmlands that were treated with chlordane *may still contain the chemical*. [1]

Different studies over the years have shown the **disastrous** health effects of chlordane use, [1] with documented health problems including child cancers, neuroblastoma, leukemia, chronic infections, bronchitis, asthma, sinusitis, infertility, neurological disorders, aggression and depression. Chlordane is considered carcinogenic, with **numerous studies showing how it can cause cancer in animals**, though further testing on humans still needs to be done. The WHO reports that chlordane toxicity can cause headaches, dizziness, problems with vision and coordination, irritability, weakness, muscle spasms, and even seizures. [2]

According to the Agency for Toxic Substances and Disease Registry, a part of the Centers for Disease Control, exposure to chlordane is very dangerous because it is rapidly absorbed through the skin, leading to systemic toxicity. Ingestion or inhalation of chlordane are similarly, if not more, dangerous, leading to acute and possibly fatal toxic effects. [3]

It gets worse: Because chlordane (originally developed by Monsanto) is so long-lasting, it was used in large quantities as a soil treatment **under and around homes** to manage termites. That means if your house was built anytime before April 1988 and in you are in a region where there are termites, your home may have been treated with this dangerous chemical. Chlordane has contaminated the air of **over 30 million USA homes** by continuing to off-gas up from sub-floor areas (remember, much of the air in your home originates in the sub-floor / ground level areas).

House dust samples collected between 1998 and 2001 found chlordane residue in an astonishing 38% of homes and DDT (banned in 1972) in 70%! [4] It is highly likely that many people are still getting a low level, ongoing exposure to these poisons even now and **simply have no idea**. [5] This is still a widely underreported health issue – even today – and honestly what we have shown you here is just the tip of the iceberg; as a quick read of reference [4] will show you.

Do NOT assume that the government will save you from this! They are notoriously slow-acting and you should not be a human guinea-pig while enough data accumulates to indicate that action needs to be taken.

Most realtors are completely unaware of these toxicity issues also and may not share your concerns – but remember you have the right to inspect any home you are buying and you should (I am not a lawyer) be able to order these tests during the inspection period. You may not be able to find out from official records if your home was treated with toxic chemicals but **soil and HVAC filter tests** should be done to ascertain whether chlordane and other chemicals are still in or around your home. Further info on this testing:
http://www.getipm.com/products/toxicology.htm

Be vigilant in choosing the food as well as with the due diligence on the home you'll be living in. Go organic with fruits and vegetables, and make sure that the meat you buy was fed with organic grass as well!

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[5] The Chlordane Pesticide Problem http://www.chem-tox.com/chlordane/

67 - Avoid Cancer Clusters

Large scale studies examining locations of cancer cases have identified “cancer cluster areas” - locations with an unusually high incidence of a specific type of cancer. According to the National Cancer Institute, an area can be considered a “cancer cluster” when people report family members, friends, and even co-workers report the same type of or related cancers.

For example - according to research done by the NCI, in the 1970s, several cases of angiosarcoma were seen in an area surrounding a chemical plant. Further investigation revealed that the rare cancer was caused by exposure to vinyl chloride in the plant. Today, vinyl chloride exposure is a known risk factor for angiosarcoma of the liver. This goes to show that sometimes statistics are the first thing people notice, then comes the science and research afterwards. Initial lack of evidence also hinders the dissemination of information to the public, affecting their lifestyle choices.

In the process of selecting your home, workplace, or the school you or even your child will go to, avoiding cancer clusters will help reduce your risk for a specific illness. While a high incidence of cancer in one area does not correlate immediately to an increased risk for cancer, it won’t hurt to consider cancer clusters as places to avoid. Simple online research can be your best friend in this regard and before choosing a home it is absolute common sense to know if there are any undue health risks associated with the locality.

68 - Lead paint

The use of **lead paint** has been restricted for many years - but **much** still persists in older homes; typically covered with further layers of paint. While we have largely addressed the presence of lead in toys and everyday items, we forget how we are most commonly exposed to it. Minute amounts of lead are considered toxic, and dust / flakes from old paint present an ongoing health hazard.

In **Australia**, paint containing *up to 50% lead* was used before 1970. In 1970 the allowable level was reduced to 1%, 1992 down to 0.25% and now down to 0.1% (0.2% for zinc-based paints). [1]

In the **USA**, paint that contained high lead levels was only banned by the US federal government in 1978, when the allowable lead content was set at 0.006%. It was then reduced right down to 0.0009% in 2009.

In the **EU**, paint that contained lead was only restricted in 1992 - so if your home (or even furniture!) was painted before that, paint containing high levels of lead was very likely used. [2] Lead chromate continues to be used in yellow road markings.

One way people become exposed to lead is when walls (or other places or items) that have been painted over with new paint (lead free!) become damaged, exposing the lead paint underneath. This lead "dust" can become inhaled or even ingested. Another obvious cause of significant ingestion is if old lead paint is sanded and the dust / fumes breathed in. [2][3]

Various studies have shown how lead paint can cause cancer in humans. In 2015, a study by Arain, et. al. revealed that one of the risk factors identified for oral cancer (chewing tobacco) was actually related to lead ingestion. The study found that subjects who chewed smokeless tobacco products and were later diagnosed with oral cancer actually had high lead levels in their blood. Similar results were found in two studies that focused on lung cancer. Cheung in 2013 concluded that **lead was directly correlated with increased risks for cancer (in general) as well as lung cancer mortality**. McElvenny, et. al. in 2015 found an increased risk for lung cancer from high exposure to lead and high lead levels in blood. [4][5][6]

To prevent exposing yourself and your family to lead paint, do research on your home! **Lead paint test kits are available** (Amazon link) - and if you discover or even suspect that your home and /or furniture were painted with lead paint, have it professionally removed using correct safety procedures rather than attempt it yourself.

References:

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[3] American Cancer Society. Lead. http://www.cancer.org/cancer/cancercauses/othercarcinogens/athome/lead

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69 - Wood dust

Did you know that **wood dust** - yes, dust from created from working with wood – can cause cancer? When wood is cut and made into furniture, trinkets, and other similar objects, tiny particles of wood dust / "sawdust" become airborne. These small dust particles then become easily inhaled and can deposit in the airways, which can lead to various health problems - cancer included. The United States Department of Labor, specifically the Occupational Safety and Health Administration, warns workers of the hazards of sanding and cutting wood. [1]

In a review of literature conducted by the International Agency on Research on Cancer (IARC), consistent strong evidence indicated a causative link between wood dust inhalation and sinonasal cancer, although the studies do not specify the exact mechanism wherein wood dust leads to the formation of cancer cells. Studies also showed a link between wood dust and nasopharyngeal cancer, although the results were less significant compared to sinonasal cancer. The IARC review suggests that the wood dust particles cause chronic irritation and inflammation in the nasal passages, which can lead to cell changes and mutations, and eventually the formation of cancer cells. They concluded that there is **sufficient evidence** to say that **wood dust is definitely carcinogenic to humans**, causing nasal, paranasal, and nasopharyngeal cancer. [2]

If you work with wood or are exposed to wood dust, make sure you wear appropriate protective gear, specifically the correctly rated dust respirators for your application. Before you apply to a job or take on a project that involves wood processing, make sure that your employer enforces correct safety measures in your work area. Adequate ventilation is a must if you decide to work with wood as well.

References:

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70 - Gas Stations (Benzene)

Benzene is a substance typically used in a variety of industrial processes as a solvent. It is also a natural component of crude oil and and is added to gasoline to increase the octane rating. However, **benzene is a known human carcinogen** and exposure to it is a significant global health problem. It was acknowledged as early as 1948 that *"the only absolutely safe concentration of benzene is zero"*! Even tiny amounts are harmful and it has been established that benzene can cause several potentially fatal diseases, including leukemia. [1]

If you smell gasoline, you are breathing benzene.

Exposure to benzene can happen in a variety of ways - most notably from inhalation of gasoline fumes, exhaust, and cigarette smoke. According to the American Cancer Society, research has mainly focused on the link between benzene and blood cancers (leukemia). [2]

Carlos-Wallace, et. al. in 2016 published a study that concluded benzene's associations with childhood leukemia, when children were exposed to benzene (either in the womb or in early childhood). [3] Another study by Linet, et. al. in 2015 focused on how **benzene also raised the risk for other types of cancer, specifically myeloid, lymphoid and lung cancers**. [4] These are just a few of the recent studies that are examples of why the IARC has declared benzene as carcinogenic to humans. [5]

Simple tips to reduce your exposure to gas station benzene: - don't top off your tank! When you fill your tank up with gas, a common practice is to add the last "squirt" of fuel into the tank after the nozzle shuts off. However, this actually causes more benzene to be released into the air – in addition to risking gasoline spillage, potentially exposing yourself, gas station attendants and vehicle occupants to benzene. It is also advisable to stand further away from the fueling nozzle, ideally upwind, and attempt to minimize the amount you breathe in. In the United States, gas pumps typically have a trigger with a latch that enables you to start fueling and then walk away from the pump (a good idea!) However in the United Kingdom for example, petrol pumps do not have these triggers, meaning motorists are forced to stand holding the pump for the

duration of fueling, thus obviously increasing the amount breathed in.

Benzene may also be ingested via contaminated water: The remarkable **Berkey Water Filter** is one that addresses this problem, removing benzene and other harmful chemicals from the water to over 99.99%.

References:

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[5] International Agency for Research on Cancer. Benzene. http://monographs.iarc.fr/ENG/Monographs/vol100F/mono100F-24.pdf

71 – Nickel

The human population is continually exposed to low levels of nickel - from the air, water, food, tobacco smoke, or from **items made with nickel**. Nickel is a naturally-occurring element, silvery-white in color and is alloyed (mixed) with other metals to create a wide variety of **coins, jewelry, and items made with stainless steel**.

The greatest exposure to nickel comes from industrial processes that handle it, which is why people who work in factories that use nickel should be wary of potential severe allergic reactions, and damage to the respiratory and immune systems. [1]

There are various, recent studies that show the dangers of nickel exposure to humans. Chiou, et. al. in 2015 concluded that **nickel is not only a risk factor for lung cancer, but also contributes to the metastasis or spread of the cancer cells to other tissues and organs**. Another study published in the year found that one of the reasons why chewing tobacco contributed to oral cancer was because of the high nickel content. [2][3]

One of the most significant recent studies was done in a small town in China in 2015 and focused on the effects of environmental exposure to nickel. The study found that exposure to nickel in the soil caused increased risk for cancers of the colon, gastric, kidney, and liver - higher in males than females. This study is an important one to consider worldwide: If your home, work, or school is near places where nickel naturally occurs, or near factories that produce items with nickel, then you are most likely at higher risk for cancer. [4]

Protect yourself from nickel exposure by doing environmental research on where you live. Also you can (admittedly with some difficulty) limit your use of items that have been made with or fortified with nickel, including stainless steel cookware, cupro-nickel coins, or jewelry *that is not specified as nickel-free*. This is sadly quite a hassle as ascertaining the metal content of the various metallic items in our daily use is quite a challenge – and most of them are *not* nickel free.

References:

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72 – Paint

#68 on this list was **lead paint**, which is linked to leukemia and other cancers. However, **paint** in general has also been linked to cancer because of the numerous chemicals that it is composed of. Fresh paint emits fumes, which is why newly painted houses are not considered completely safe to live in until they have been aired out. [1]

A study on painters by Guha, et. al. in 2010 focused on why the **occupation** was listed by the IARC as "carcinogenic to humans". Their results supported the IARC, concluding that people who were highly exposed to paint were at risk for lung cancer. They took into consideration exposure to environmental agents like asbestos and lifestyle choices like smoking and still ended up with a causal relationship between paint exposure and lung cancer. The study suspected various carcinogens to be responsible for this relationship, such as chlorinated solvents, chromium compounds, and cadmium compounds. [2]

A study focusing on home paint actually found links between childhood leukemia and home paint exposure. The study concluded that exposure to home paint while in the womb or early on in life contributed to an increased risk for acute lymphoblastic leukemia. [3]

Today, there are various "organic" and "odorless" paints in the market, popular because they are pesticide, herbicide, solvent, "low-VOC" or (ideally) "VOC-free". If you can't avoid painting, it's better to have professionals do the work for you, using the correct respirators, and allow ample time for the paint to dry and settle before moving in the newly painted house or using the painted item. Be wary of your children and pets as well! Paint can easily chip and become accidentally ingested as well so be mindful of painted items or places in your home!

As a further note - home renovation in general is a known route of exposure to numerous toxic chemicals and dusts. If undertaking major work on a home, it is highly advisable to relocate until the work is done.

References:

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73 - Passive smoke

Passive smoking (a.k.a. breathing secondhand smoke) is bad for your health. Studies have shown how secondhand smoke is a known carcinogen, **causing lung cancer in people who have never smoked a cigarette in their life**. Research done by the American Cancer Society and the IARC have found links between passive smoking and cancers of the larynx, pharynx, nasal sinuses, brain, bladder, breast, rectum, and stomach. In children, passive smoke could possibly play a role in increasing the risk for lymphoma, leukemia, liver cancer, and brain tumors. [1][2]

The Women's Health Initiative conducted a study in 2015 that concluded **both active and passive smoking contributed to a significant increase in lung cancer risk**, particularly small-cell and squamous-cell carcinoma, among postmenopausal women.[3] **The longer the exposure to passive smoke, the greater the risk for lung cancer.** Li, et. al. in 2015 found a strong link between passive smoking and an increased risk for breast cancer.[4] With hundreds of studies showing how dangerous passive smoking is, the IARC has declared secondhand tobacco smoke as a known carcinogen to humans.

Secondhand smoke is a combination of "mainstream" and "sidestream" smoke. Mainstream smoke is the smoke exhaled by the smoker. Sidestream smoke comes from the lit tobacco - and is considerably more toxic because it doesn't pass through the filter of the cigarette. Both kinds of smoke contain toxic chemicals that build up over time in the body, increasing the risk for respiratory disease and cancer. If you want to avoid increasing your risk for lung cancer, *don't smoke* and *stay away from places where people are smoking*.

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[4] Li B, Wang L, et al. (2015). Passive Smoking and Breast Cancer Risk among Non-Smoking Women: A Case-Control Study in China. http://www.ncbi.nlm.nih.gov/pubmed/25915759

74 – Cadmium

Cadmium is a naturally-occurring metal found in the Earth's crust, but is typically extracted as a byproduct of the production of various metals such as zinc, copper, and lead. While cadmium exposure is highest during industrial processes, consumers may be exposed to it through batteries (83%), cigarette smoking, pigments, coatings, platings, plastic stabilizers, alloys, and cadmium telluride solar cells, the second most common type in global use. A spotlight has been placed on **cadmium** and its very strong association with breast cancer. **Cadmium exposure has been linked to breast, lung, and pancreatic cancer** to name a few. [1]

The US Department of Labor calls cadmium a toxic chemical, wherein workers who are directly exposed to it have the highest risk of acquiring cancers that target the heart, kidneys, intestines, brain, reproductive organs, and lungs. The US Department of Health, IARC, and EPA have all declared cadmium as a known human carcinogen. [1][2]

- Nawrot, et. al. (2015) concluded that (at the very least) low-level environmental exposure to cadmium is a significant risk factor for lung cancer. [3]

- A Chinese study by Peng, et. al. (2015) focused on cadmium and breast cancer, reporting that not only does cadmium exposure increase the risk for the development of breast cancer but also promotes the development of the cancer into advanced states. [4]

- Chen, et. al. (2015) found a link between pancreatic cancer in men and cadmium exposure. The researchers suggest further study into why the risk was elevated for men but not for women. [5]

There are plenty of studies that share similar results as these three. Not only do we have to worry about our environmental exposure to cadmium, we should limit our exposure to consumer products that have it or have been exposed to it. Dispose of old batteries promptly and correctly and don't smoke. There are also areas which have high cadmium in the soil; eating crops grown in these areas causes cadmium ingestion, especially in the people local to that area; consider learning where those places are and avoiding food that was grown there.

Examples given are the Jinzu and Kakehashi river basins in Japan. [6]

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75 – Arsenic

If you are a fan of suspense or murder mysteries, you will be familiar with **arsenic poisoning**. Arsenic is commonplace and even small doses can be lethal. Also, drinking water contaminated with arsenic can expose us to a higher risk of cancer.

A study published in the Journal of the National Cancer Institute in 2016 focused on the link between **arsenic exposure through contaminated drinking well-water and bladder cancer**. The researchers investigated the cause of elevated bladder cancer mortality in New England and found that the risk went up as water intake increased. Arsenic found its way into the water because drinking wells were dug during a time when arsenical pesticide use was rampant. [1]

Similar results were found linking arsenic and bladder cancer in a study done in Chile, emphasizing that early exposure to arsenic could increase the risk for bladder cancer in adulthood. [2]

Heck, et. al. (2014) concluded that a pregnant mother's exposure to arsenic and childhood environmental exposure increased the risk for leukemia. [3] With 16,000 American children being diagnosed with cancer each year, we should be very cautious about the role arsenic plays in how cancerous genetic mutations happen.

When choosing your home, a clean source of water should be a priority. We drink water every day; if our drinking water source is contaminated, we are willingly putting dangerous chemicals that increase our risk for cancer into our body.

More than 99.9% of Arsenic is removed by the **Berkey Water Filter**:

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76 – Fiberglass

Since the carcinogenicity of asbestos was firmly established and its use restricted, the popularity of fiberglass/glass wool has skyrocketed. Instead of using asbestos as an insulating and protective agent, glass wool fibers are packed together tightly to create fiberglass and this is placed inside of attics, sub-floors and walls. Because glass wool is highly versatile, it can be used in a variety of places and adjusted to fit specific applications including pipe insulation and in soundproofing. However, recent studies have caused glass wool to be classified as a possible carcinogen by the National Toxicology Program (NTP), specifically as "**reasonably anticipated to be a human carcinogen**".

The NTP clarifies that not all glass wool is carcinogenic, but glass wool that is **inhalable** and stays in the lungs long enough to cause damage (characterized as biopersistent) is. Rapisarda, et. al. in 2015 concluded that inhaled glass fibers damaged cells through oxidative stress and caused genotoxicity, or damage at the genetic level. Genotoxicity can cause mutations that lead to the development of cancer in the lungs. In fact, studies have been done on glass fiber workers, assessing their risk for acquiring lung cancer. Shannon, et. al. found that workers in glass fiber manufacturing exhibited increases in lung cancer incidence. While these studies are not enough to conclusively label glass wool or fiberglass as a known-carcinogen, they are enough for the public to be wary of a potential increase in cancer risk upon exposure. [1][2][3]

When you are choosing your home or having it built, be careful of the building materials used. You can even go green in terms of insulation – you can use shredded denim, sheep's wool, or similar items.

If you are working with fiberglass, it is imperative to use a good quality respirator. Limit your exposure to glass wool and consider HEPA air purification for the home.

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77 - Air pollution

When you live in the city, avoiding air pollution can be difficult. With the steady stream of exhaust from overworked vehicles, factories, and even cigarettes, the air in many cities is notoriously toxic. Air pollution does not only harm the environment, it harms humans too: There are several studies that link consistent exposure to air pollution to several types of cancer.

There have been two significant studies recently published on air pollution and cancer. The least surprising cancer that has been linked to air pollution is lung cancer. Guo, et. al. in 2016 published a study wherein there was a significant increased risk of lung cancer with increasing air pollution. The researchers focused on a Chinese population exposed to ambient air pollution and concluded that control measures were needed to reduce air pollution and therefore lower lung cancer incidence. [1]

In 2015, Hystad, et. al. published as study linking breast cancer incidence among Canadian women and exposure to air pollution from traffic. The researchers found positive associations between breast cancer incidence and all three measures of nitrous oxide exposure (mainly found in car exhaust). [2]

When choosing your home, the best (healthiest) option is still away from the city. Fresher air can be found in the countryside, and with it a reduced risk for cancer. If you can compromise, choose a home that is not immediately in the city center but close to public transportation if you commute to work or school. And then of course there is air purification...

References:

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78 - Diesel Exhaust

In a world where roads connect every major city and town, our exposure to car exhaust - specifically diesel exhaust – has risen exponentially in the past several decades. The World Health Organization reports that the number of *registered* vehicles in the world between increased over 16% 2010 and 2013! Motor vehicles are one of the major contributors to air pollution and according to recent studies, **exposure to diesel exhaust can cause an increase in cancer risk**. [1]

Diesel exhaust is a mix of different gases created from the combustion of diesel fuel in a car engine. People who spent a long time on the road or in close proximity to traffic experience the highest exposure. The United States Department of Labor states that workers exposed to diesel exhaust can experience eye and nose irritation, headaches, nausea, and even lung cancer. [2]

In 2012, the International Agency for Research on Cancer has declared diesel exhaust a known human carcinogen based on different studies that link exposure to it with lung cancer. [3] There are several recent studies that will try to refute this claim (be wary of studies that are backed by oil and fuel companies!) but the evidence is clear: **exposing yourself to diesel exhaust causes significant increases in your risk for cancer**.

Vermeulen, et. al. in 2014 concluded that common diesel engine exhaust levels in the workplace and outdoors creates lifetime risks of lung cancer in both the occupation and general population. [4] According to this study, three occupations - two trucking jobs and one mining job - lead to drastic increases in lifetime exposure to diesel engine exhaust or DEE, thereby increasing the risk for lung cancer.

On a genetic level, Okubo, Hosaka, and Nakae (2015) found that **diesel exhaust caused severe oxidative stress in the body, causing cell toxicity in alveolar lung tissue**. Cell toxicity can lead to cancer. When it comes to bladder cancer, the results only limited evidence of increased risk; the researchers suggested further studies to get more concrete results. [4][5][6]

Latifovic, et. al. in 2015 linked **occupation exposure to diesel exhaust with an increased risk of bladder cancer**. [7] One of the latest studies was by

Kachuri, et. al. in 2016, wherein **workplace exposure to diesel exhaust was linked with high risks for colorectal cancer in men**.[8]

If you spend a lot of time on the road, take whatever steps you can to minimize your exposure. People who rack up the most miles, such as cross-country truck drivers, delivery drivers and cab drivers. Exposure to DEE can also happen if you commute and of course if you ride a bicycle in traffic. Look for a vehicle with a cabin air filter. Effective in-car air filtration and the judicious use of 'recirc' may reduce your exposure.

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PART 6 – LIFESTYLE CHOICES

79 – Smoking

Smoking is a killer – and that's a fact. The CDC declares the act of smoking as the number one risk factor for lung cancer, and hundreds of scientific studies have been published to back up this claim. Smoking cigarettes has been linked to as many as **90 percent of lung cancer cases** in the United States, but other tobacco products have also contributed to lung cancer incidence - such as the use of cigars and pipes. Cigarette smokers are **30 times more likely** to be diagnosed with lung cancer (or die from it!) compared to non-smokers. [1]

A recently published study by Underner, et. al. in 2015 further supported the claim of the dangers of smoking, finding that continued smoking has a continually negative impact on the progression and treatment of lung cancer. The researchers agree that smoking cessation is a vital part in the management of patients with lung cancer, in order to improve the quality of life. [2]

Smoking is not only linked to respiratory system cancers (the most obvious cancer to link it to) but other forms of cancer such as breast cancer. Boone, et. al. found that smoking was linked to increased incidences of breast cancer morbidity and mortality, regardless of other factors. Don't forget secondhand smoke, which also increases the risk for certain types of lung cancer. In some ways, secondhand smoke is worse than smoking first hand because it includes unfiltered "sidestream" from the cigarette which exposes you to more toxic chemicals. [3][4]

Seeing as smoking is a modifiable risk factor with no actual health benefits, avoiding it completely is the best way to reduce your risk for cancer!

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80 - Safe Sex

Safe sex is a must for sexually active people. In today's day and age, the availability of items used in safe sex (e.g. condoms and diaphragms) has vastly improved. Despite that, the stigma placed on sexual activity has affected the choices young people make regarding their sexual health. Some STDs can lead to an increased cancer risk: The Human Papillomavirus or HPV is one of the biggest contributing factors to cancers that affect the cervix, vulva, vagina, penis, and anus (as well as oropharyngeal cancers) – and you can get it from unsafe sex. It is estimated that **14 million people in the US acquire an HPV-infection each year**. [1] However note that very few people infected with HPV will develop cancer and in 90% of cases, the infection is cleared naturally by the body within 2 years. [2]

HIV type 1, Hepatitis B and C are also listed by the IARC as group 1 "known carcinogens". [3]

Getting HPV from unsafe sex is dangerous because viruses basically "hijack" cells, forcing them to create more viruses. This alone can cause cancer because the HPV virus changes the cells, and mutated cells are one of the many characteristics of cancer.

There are more than 100 types of HPV and around 15 are associated with cancer. HPV-types that classify as "high risk" because there is a higher risk for cancer when you are infected with them, include types 16, 18, 31, 33, 35, 39, 45, 51, 52, 56, 58, 59 and 66. [3] Women affected with cervical cancer can have multiple HPV-types in their cervical cells, according to Wang, et. al. [4]

Risk factors for HPV include: multiple sex partners, early age during first sexual intercourse, and practicing unsafe sex. A study has linked multiple sex partners with a higher-risk HPV, specifically unsafe oral sex. While abstaining may indeed be the best way to avoid cancers that affect the sexual organs of the body, safe sex should be practiced by people who are or are planning to be sexually active. You are not only protecting yourself, you are also protecting the health of your partner. It's advisable to get tested for STDs regularly or whenever there was a potential exposure - in addition to actual safe sex practices.

You *cannot* get infected with HPV from toilet seats, skin contact, swimming, or sharing utensils. It isn't hereditary either! [5]

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81 - Hormone Replacement Therapy

Hormone replacement therapy (**HRT**) aka. **menopausal hormone therapy** (**MHT**) is a medical treatment that involves the introduction of hormones to the body in order to manage the signs and symptoms of menopause in women. Women who get HRT can do so via pill, skin patch, injections, cream, gel, or spray. The first three are the most popular ways this method is used and have proven effective. But this therapy comes with a price. While HRT is able to prevent the irregular periods, vaginal dryness and hot flashes that come with menopause – it can also increase your risk for cancer. [1][2]

There are conflicting results when it comes to studies about HRT and breast cancer risk. However, the fact that there are results of a significant associations between them means that we should be more cautious when choosing HRT to manage menopause. **A study conducted in Norway from 2004 to 2009 (and published in 2015) concluded that HRT caused a majority of breast cancer cases in the population.** Li, et. al. conducted a similar study in 2014 on different kinds of HRT, concluding that combined hormone therapy (CHT) increased breast cancer risk after three years of use. Estrogen hormone therapy (EHT) also caused an increased breast cancer risk, but after nine years of use. In fact, another study found that while exercise was able to reduce breast cancer risk, taking HRT cancelled out its protective effects. [3][4]

While hormone therapy can really help women suffering from menopause, it is also very risky. Like birth control pills, use of hormone therapy can cause rapid growth of breast tissue and formation of tumors – which increases the risk for various forms of breast cancer. There many alternative natural methods you can turn to in managing menopause (like green tea, ginseng, other herbs and soy) instead.

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82 - Birth Control Pills

To many people, “the pill” has been a very effective family planning method - preventing unwanted pregnancies as well as regulating the body’s hormones. However, most people forget that these pills have both short-term and long-term side effects. BreastCancer.org has reported concerns that using hormonal contraceptive pills could also overstimulate the growth of breast cells, which could possibly contribute to an increased risk for breast cancer. While family history may also play a role in breast cancer, personal habits and medication use can also contribute to the cancer’s development. [1]

Recently, numerous studies have also had results that link birth control use with breast cancer. A significant study by Beaber, et. al. in 2014 concluded that use of oral contraceptives, both long-term and current use, was associated with an increased risk for breast cancer for women aged 20 to 44. Long-term use was described as 15 years or longer and current use was described as five years or longer. Lanfranchi’s 2014 study answered the Breast Cancer Organization’s concerns, wherein hormonal contraceptives increased breast cancer risk through its proliferative effect on breast tissue (which can cause tumor growth). There are many other studies that share the same results - this alone should cause anyone, male or female, to be concerned about breast cancer risk. [2][3]

To reduce your cancer risk, practice other methods of family planning instead of taking birth control pills.

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83 - Sun Safety

Getting a little sun is an important part of maintaining good health, but as beneficial as sunlight is, too much can also cause health problems. **Sun exposure** can cause skin cancer by damaging skin cells and causing mutation (and therefore cancer). The American Cancer Society cites **skin cancer as the world's most common cancer**, with 5.4 million cases diagnosed every year, with UV exposure is one of the major risk factors in acquiring it. We need to protect ourselves by wearing or using appropriate gear. [1]

Nahar, et. al. published a study in 2015 concluding that low perceived risk and lack of knowledge regarding sun protection methods contributed greatly to non-melanoma skin cancer risk, especially among people who have been previously diagnosed with skin cancer. The fourth edition of the *European Code* published in 2015 advises against "too much sun, especially for children. Use sun protection. Do not use sunbeds" to reduce our exposure to harmful UV rays that contribute to skin cancer. [2][3]

Most people are unaware that sun exposure has also been linked to *other* cancers! Tyburczy, et. al. published a study in 2014 whose results showed that sun exposure caused second-wave cellular mutations in people affected by tuberous sclerosis complex (TSC), a condition where tumors form in different organ systems of the body. [4]

Because your skin can get damaged in as short as 15 minutes, the CDC advises everyone to practice adequate sun safety whether or not you live in a place that gets a lot of sun. There are five main tips to protect yourself from the sun: [5]

(1) Seek shade! Hide out under an umbrella, tree, or other shade cover to avoid that sun's harmful rays.

(2) Pants and long-sleeved shirts are an excellent way to protect yourself, especially if they are made with tightly woven, dark colored fabric.

(3) Add a broad-brimmed hat or sun visor to your outfit. Your face is one of the most important areas of the body that needs protecting from the sun. The skin on the face is very sensitive and gets damaged very easily, additionally making you prone to wrinkles. Wide brimmed hats are the best kind of hats to wear for

sun protection because they provide maximum shade for the face and back of the neck (one of the most common places to get sunburn).

(4) Don those sunglasses! Sunglasses protect your eyes from harmful UV rays and actually reduce the risk for cataracts. The bigger your sunglasses, the bigger the area of skin they cover. In fact, some sunglasses are coated to prevent UVA and UVB rays from reaching your eyes. According to Chorley, Evans, and Benwell in 2011, coated prescription glasses are effective in sun protection but sunglasses are still superior. [6]

(5) Be aware that reflected sunlight can also expose you to UV rays. Very fair skinned people may find that they can get sunburn even from reflected sunlight bouncing back from reflective surfaces such as concrete or white painted walls.

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84 - Healthy Weight

A healthy weight has always been linked with better health. Typically, people with normal body mass indices have a healthier diet and lifestyle compared to those who don't.

Many studies have looked into causational relationships between weight gain and cancer, finding that the high body mass index was linked to a higher risk for several types of cancer:

- The results of Schlesinger, et. al.'s study in 2015 found that for every five kilogram increase in body weight, there was a four percent increase in colorectal cancer risk. This association was present no matter the age or sex of the person, although risk was higher for men. [1]

- According to Meyer, et. al. in 2015, weight *alone* did not contribute to an increase in cancer risk, but increased the risk significantly in people who smoked. [2]

- Stevens, et. al in 2014 focused on endometrial cancer risk and the age at which high body mass index contributed to it. The results revealed that high BMI at age 18 and subsequent gains in weight during adulthood were significantly associated with increase in endometrial cancer risk. [3]

- Suzuki and Saji's study in 2015 showed that one of the reasons why menopause contributed to breast cancer risk is because of the weight gain that comes with fluctuating estrogen levels. An increase in body fat after menopause is linked to the formation of tumors in the breast, which can be malignant or cancerous. [4]

Keeping your BMI at normal levels (between 18 and 24) can greatly deter your risk for different cancers. Eat more vegetables, cut out sugar, avoid processed food, and exercise regularly!

References:

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85 – Sitting

Having a sedentary lifestyle is one of the major risks factors that contribute to chronic cardiovascular and metabolic diseases like hypertension and diabetes, with recent studies showing how siting for long periods directly relates to cancer. **Spending most of your time sitting down has actually been linked to an increased risk for cancer**, according to research done by the American Cancer Society.

The American Cancer Society's Cancer Prevention Study concluded that **women who spent six or more hours sitting down had a 37 percent greater chance of mortality compared to women who sat down for three hours or less**. The risk was lower for men (at 17 percent) but still present all the same. Exercise also factored in to the same study, wherein women who did not exercise and spent much of their time sitting down had an alarming 94 percent higher risk for death compared to men's 48 percent. [1]

When it comes to site-specific cancers, Patel, et. al. in 2015 concluded that longer time spent sitting down was associated with higher total cancer risk in women for multiple myeloma, breast, and ovarian cancers. In men, Simons, et. al. in 2013 found that longer occupation sitting time increased the risk for colorectal cancer, and that increase in physical activity reduced this risk. [2][3]

If you have a job that entails hours on end doing desk work, maybe it's time to find ways to be more active in the workplace. Take a ten to fifteen minute break every two hours or so to get your circulation moving and your muscles a short work out. This will also help prevent work burnout and reduce physical and mental stress associated with long work periods.

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86 - Occupation Exposure

Occupational exposure is one of the most common risk factors in acquiring cancer. People who **work with carcinogens that they would otherwise not be exposed to in their daily lives** are at great risk for becoming diagnosed with a variety of cancers. Carcinogenic substances like coal tar pitch, creosote, arsenic, or radium are typically used in industrial processes where workers can become exposure to high quantities and raise their susceptibility to cancer.

Coal tar pitch is a by-product of industrial processes that use coal tar (such as aluminum production), and has been classified as a group one carcinogen by the IARC. The National Cancer Institute reports that occupational exposure to coal tar pitch has been linked to cancers of the skin, lung, bladder, kidney, and gastrointestinal tract. Another by-product of coal production is **creosote**, which is typically used in the wood industry. Spilled creosote can also become absorbed by groundwater and, eventually, plants. The IARC concludes that creosote is probably carcinogenic to humans because of reports linking it to skin and scrotal cancers. [1][2]

Other common substances that workers are exposed to include **arsenic** and **radium**. Arsenic exposure can come from places that manufacture pesticides and work with copper and in mining. The American Cancer Society reports that arsenic exposure causes increased risk and incidence in lung cancer, the longer a worker is exposed. Other cancers that can be linked to arsenic are bladder, kidney, lung, skin, colon, liver, and prostate cancers. Similarly, exposure to radium has, a radioactive chemical used in chemotherapy and is also a byproduct of coal and fuel production, has been linked to bone, liver, and breast cancer, according to the Agency for Toxic Substances and Disease Registry. [3][4]

These are just a few examples. Before choosing a career path, make sure to thoroughly check the health risks you may be exposed to!

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[2] Agency for Toxic Substances and Disease Registry. ToxFAQs™ for Creosote. http://www.atsdr.cdc.gov/toxfaqs/tf.asp?id=65&tid=18

[3] American Cancer Society. ToxFAQs™ for Arsenic. https://www.atsdr.cdc.gov/toxfaqs/tf.asp?id=19&tid=3

[4] Agency for Toxic Substances and Disease Registry. ToxFAQs™ for Radium. https://www.atsdr.cdc.gov/toxfaqs/tf.asp?id=790&tid=154

87 - Dry Cleaning

Dry cleaning is the preferred choice for many types of clothes that are too delicate to be washed in water. Instead of water, the dry cleaning process uses chemicals or solvents that do not harm fabric. However, while dry cleaning does make it easier to clean delicate clothes, the chemicals used can harm a person's health. Recent studies have shown that a chemical involved in dry cleaning called "perc" or **perchloroethylene** is directly linked to several types of cancer. Either inhalation or direct contact with perchloroethylene (and variations of it) can cause an increase in cancer risk.

Vlaanderen, et. al. in 2014 found that tetrachloroethylene (TCE), another chemical used in dry cleaning, increased the risk for bladder cancer among dry cleaners. [1] The IARC has also classified this chemical as a probable carcinogen to humans. Perc, in particular, was also studied by Guyton in 2014. The results concluded that the chemical is likely to be carcinogenic, causing bladder cancer, non-Hodgkin's lymphoma, and multiple myelomas. The same study also concluded that exposure to Perc caused neurotoxicity, or damage to the body's nervous system. [2] Vlaanderen, et. al. also conducted an older study in 2013 on TCE and Perc, concluding that Perc exposure increased the risk for liver cancer and non-Hodgkin's lymphoma. [3]

If you are having clothes dry cleaned, take care to avoid breathing any residual solvents and let the clothes air out completely before bringing them not your living space or wearing them.

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kidney cancer in four Nordic countries.
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88 - Night Shift Work

If you work in places such as medical institutions where business is ongoing 24/7, night shifts are unavoidable. Somebody has to work late hours and sometimes that person is you. However, disturbances in a person's sleep pattern has been linked to different health problems – among them cancer! When a person loses sleep, it can affect their immune system and make them more susceptible to disease because sleep is when the body "recharges". Lack of quality sleep causes problems in concentration, mood changes, and loss of energy – and apparently, cancer as well.

A 2015 study by Papantoniou, et. al. conducted a study on night shift work in Spain. The researchers concluded that overall risk for prostate cancer was higher for people who worked night shifts. And it doesn't stop there! The risk for prostate cancer was high for people who worked mornings but used to work long-term night shifts beforehand, suggesting that exposure to night shift work at any point in time could increase your cancer risk and worsen your prognosis. [1]

For women, night shift work and poor quality sleep has been linked to increased breast cancer risk. In a study by Wang, et. al. in 2015, there were three sleep factors that interplay with each other to increase breast cancer risk significantly (compared to the factors independently): night shift work, long sleep durations, and lack of daytime napping. [2] A literature review was done previously in 2011 by Brudnowska and Pepłońska and focused on the effect of night shift work on risk for colorectal cancer, endometrial cancer, prostate cancer, and non-Hodgkin's lymphoma. The association between breast cancer risk and night shift work was widely studied because of positive correlational results. [3]

If possible, try to avoid jobs that ask you to spend a lot of time in the night shift – especially if you still have to do work or run errands in the morning, leaving you no time for quality sleep. If you can't 100 percent avoid working nights, try to get a full number of hours sleep later to give your body a chance to recover.

References:

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PART 7 - WAVES AND RAYS

89 – Microwaves

Frozen dinners and other microwave foods have become very popular to busy people or those who are willing to prioritize leisure time and sleep over slaving away in a hot kitchen to cook a meal. When it takes minutes to heat up leftovers or frozen pizza, using the microwave becomes more and more appealing.

While the "official" consensus is that microwaves to do not produce enough radiation to make food heated in them dangerous, there are several facts that warrant your attention. Microwave ovens produce radiation that allows water molecules in food to vibrate and create heat – which in turn heat food. Exposure to this type of radiation can cause mutations in cells and create cancer but in microwave ovens, this radiation is intended to be contained. However, microwaves are still electronic devices that wear and tear over time, and you cannot be 100 percent sure that it doesn't leak radiation. [1]

It's an ironic point that microwaves have been proven to be an effective cancer treatment - because they can cause cell-death! Different studies have shown how **localized** treatment with microwaves can kill cancer cells in breast and colorectal cancer. But remember, the possibility that your microwave is leaking radiation affects your healthy cells and can damage them. [2][3]

While you save time on cooking, you could be increasing your risk for cancer every time you choose the microwave instead of a stove. The radiation you expose yourself too can be minute, but would not be detectable until it's too late.

References:

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treatment of epiphyseal osteoid osteomas.
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90 - CT Scans

The advent of medical technology has brought about advancements that help with the diagnosis different medical conditions. However, there are many risks that come with using technology on our bodies - especially diagnostic examinations that use radiation. **Exposure to radiation** is a long-established risk factor for cancer, and studies have been done assessing the degree of risk associated with undergoing specific diagnostic procedures that involve the use of radiation. **Radiation can cause mutations in healthy cells**, which may lead to rapid growth and the development of cancerous tumors.

A French article published in 2016 delved into studies that focused on the effects of CT scan exposure in childhood on long-term cancer risk. The results found that there was an increase in cancer risk after several exposures to CT scans. Because children have weaker and immature immune systems, their healthy cells are more prone to mutation (when exposed to radiation) and therefore more prone to the development of cancer. Another study in 2016 by Berrington de Gonzales, et. al. also found a relationship between pediatric CT scans and risk for leukemia and brain tumors. Most of the studies you will find are for childhood exposure to radiation, but the risk for adults is still present. [1][2][3]

The National Cancer Institute states that the risk for cancer and exposure to CT scans is small and that the benefits usually outweigh the risks. However, the presence of the risk because of exposure to radiation should be understood. In fact, it is suggested that complete assessment of medical histories and examinations be done *prior* to a CT scan if reasonable to do so – as this may help reduce exposure to unwarranted procedures. It's not the place of this guide to make a medical recommendation: Before agreeing to any medical procedure that involves radiation, discuss the risk with your physician first. [4][5]

References:

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[4] National Cancer Institute. Computed Tomography (CT) Scans and Cancer. http://www.cancer.gov/about-cancer/diagnosis-staging/ct-scans-fact-sheet

[5] Schwartz D. (2008). Counter-Point: Are We Really Ordering Too Many CT Scans? http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2672242/

91 - Cellphone use

The use of **mobile devices** has increased exponentially in the last 20 years – and will likely continue to increase as affordable phones are marketed globally and network areas are expanded. With mobile phone subscriptions hitting close to an astonishing 7 billion globally,[1] our exposure to radio frequency electromagnetic fields (RF-EMF) is higher than ever. This has raised concerns regarding the effect of RF-EMF on humans, particularly their risk for cancer.

In 2011 the International Agency for Research on Cancer (IARC) classified RF-EMF as **possibly carcinogenic**, because of a higher risk for **gliomas**, a type of brain cancer. [2] Fully understanding how RF-EMF affects a person's health needs further research and study in order to raise public awareness on the dangers of too much **cell phone usage**.

Radio frequency (RF) is emitted by all hand-held electronic devices, such as mobile phones, tablets, and laptops. Here is the bottom line: the IARC has published a statement that RF-EMF can cause cancer in humans, classifying it as "2B" which means several research publications have concluded that exposure to RF-EMF increases human risk for brain cancer, specifically gliomas. [2] This announcement was made only three years after the first iPhone was launched - from which the battle for the best smartphone begun, with companies like Samsung, Asus, and many others releasing smartphone after smartphone, typically six months to a year after their previous releases. Today, low-production costs in places like China have added more and more cellular phones to the market, drastically increasing human exposure to RF-EMF. [3]

According to Dindic, et. al's review in 2013, cells that are exposed to RF-EMF experience high levels of oxidative stress. Because of this, free radicals become present in the blood, one of which is peroxynitrite, a very aggressive free radical that is able to break single-strand DNA - which can ultimately cause cancer. [4]

One of the most troubling recent studies explaining the risk of RF-EMF was published in the latter half of 2014 by Hardell and Carlberg. [5] Since the IARC study only covered a short latency period of 10 years, Hardell and Carlberg extended their study to include a 25-year period. Hardell and Carlberg's results were conclusive - use of mobile and cordless phones were directly associated with increased risk for glioma, with **the risk increasing the longer a person**

is exposed to RF-EMF. In fact, **the group with greater than 25 years of mobile and cordless phone use had a three-fold increased risk compared to users with less than 12 months exposure to same devices**. The researchers also published a further study in 2014 which revealed decreased survival rates with long-term mobile phone use among glioma patients. [6]

A study in 2004 revealed that **mobile phone use of at least 10 years increased the risk of acquiring acoustic neuroma**. [7] Another study in 2009 revealed a positive association between mobile phone us and the development of parotid gland tumors. [8] In 2013, Bhat, Kumar, and Gupta analyzed published studies on mobile phone use and cancer risk, concluding that long term, low intensity exposure to radiation from mobile devices could potentially lead to tumor formation. [9]

However, let's be honest; we cannot easily just cut cell phone use out of our lives. But here are a few tips to help reduce your exposure and your cancer risk.

1) Limit the duration of cell phone use, especially long calls.

2) Keep a greater physical distance between the device and your head when on the phone. For example use *speaker mode* or a headset. Also it's better if possible to have the phone turned up louder and held further away from your head during regular calling. Every inch further away may be helpful as the RF is strongest right next to the device.

3) Rather than keeping the phone in a pocket when not on a call, keep your phone in a bag or in another location not directly attached to your person. Smartphones are transmitting and receiving data even when you are not making a call.

4) Limit children's access to mobile devices to scenarios where they would be valuable for increased safety.

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[1] World Health Organization. Electromagnetic fields and public health: mobile phones. (2014). http://www.who.int/mediacentre/factsheets/fs193/en/

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92 – X-Rays

There is an important reason why pregnant women aren't allowed to have their x-rays taken - because the radiation is powerful enough to harm an unborn fetus. The radiation from a simple x-ray is deemed safe for healthy adults and children. But take another read at that sentence – if x-rays are not safe enough to risk exposure to an unborn, how can they really be described as "safe" for adults?

What about the medical technicians who operate the machine and may potentially be exposed to levels of radiation for long periods of time? Are they "safe" from the dangerous of radiation as well?

Various studies have focused on **occupational radiation exposure**, not just from medical devices but other scenarios that involve the use of radiation, and found that *risk and x-ray exposure are correlated:*

- A study conducted by Wang, t. al. in China on x-ray technicians revealed that increasing occupational exposure from x-rays caused increasing breast and esophagus cancer risk. They suggested prevention strategies were needed in order to bring down the levels of exposure these medical technicians face. [1]

- Similar results were found by Fournier, et. al.'s 2016 study: Where there is a decrease in cancer-related mortality as radiation exposure decreases. [2]

- According to Preston, D., et. al. there was a positive association between occupational radiation to the breast and breast cancer risk. [3]

Your job is one of the biggest factors that can affect your health, specifically the carcinogens that you are exposed to at work. Working directly with medical equipment that produces radiation exposes your cells to damage that can cause cancerous mutations. This is particularly dangerous for women, wherein different studies have linked occupational radiation to breast cancer. Before you decide on a career path, research and be aware of the occupational hazards involved. If you do choose to work with radiation, make sure you use the correct protective gear and carefully follow best practices for safety.

References:

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PART 8 - FURTHER PREVENTIVE STRATEGIES

93 - Total Darkness While Sleeping

Now this might seem bizarre in a manual about cancer risks - but researchers have discovered that turning off the light when you sleep can actually help prevent cancer! Exposure to light directly affects the way the body produces **melatonin**, a hormone that helps regulate the body's sleep cycle. When you sleep with the lights on, the body produces less melatonin – likewise, spending more time in the dark produces more of it. This can interfere with your sleep-wake cycle in a manner similar to the way travelers experience jet lag when moving across time zones. There have also been studies that link a decrease in melatonin production with breast cancer. [1]

According to Alonso-Gonzales, et. al. in 2016, an increase in melatonin production has a protective effect against breast cancer. When melatonin is produced by the body, it creates stability at the genetic level, helping prevent the occurrence of breast cancer cells. On the other hand, a decrease in melatonin production could increase a woman's risk for breast cancer. A similar study was done previously in 2014 by Dumont and Paquet, concluding that the decrease in melatonin production due to working at night could probably contribute to an increase in cancer risk. In fact, Benabu, et. al. in 2015 concluded that there was a moderate increase in risk for breast cancer among women who worked nights (see our chapter on night shift work for more on this). [1][2][3]

This information puts a new view on bad sleeping habits and cancer risk. It turns out that leaving the light on while you sleep could potentially increase your risk for acquiring breast cancer, especially if you work night shifts often. In order to keep your breast cancer risk low (and to save energy), remember to turn off your light before going to bed, or use a smaller, dimmer night light instead. It is advised also to sleep regularly at the same time of night, during natural darkness

hours as much as possible.

References:

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94 - Whole House Water Filters

Public water supplies are typically treated with chemicals to get rid of microorganisms that make would otherwise make the water dangerous to drink. However, these chemicals have been associated with dangerous effects on health. Public water sources are usually treated with chlorine. However many people are *completely unaware* that this process can produce **DBPs** or **disinfection byproducts**. DBPs are toxic and considered carcinogens.

The most common DBPs formed after water treatment are **trihalomethanes** (**THM**) – generated as a byproduct when chlorine is added to water and decays the natural plant life, like algae, weeds, and leaves. The scariest part about THMs is that they are colorless, odorless, and tasteless - all the while being toxic. These characteristics mean that these dangerous chemicals are hard to detect - but can cause serious health issues when ingested. [1] Different studies have linked THMs with cancers of the bladder, colon, and rectum. Min and Min, et. al. in 2016 concluded that blood trihalomethane levels were **significantly associated with total cancer mortality in adult**s. [2]

It's bizarre to think that **filtering your tap water can mean the difference between life and death**! But scientific studies have supported this. It's a reality.

Rahman, et. al. in 2014 found a positive association between THM exposure (specifically bromoform) and colorectal cancer in men (but not in women) after a five year period. Salas, et. al. published a study with similar results in the same year, but with bladder cancer risk. THM exposure had a strong positive association with urothelial bladder cancer risk. There are other studies that focus on how THM exposure causes an increase in general cancer risk. [3][4]

The best way to protect yourself from the dangers of chlorinated water is by using a water filter in your home. **Whole house water filters** are placed at the point of entry where water enters your home's pipes. That means you don't need a filter for every faucet, you just need one! When installed, your entire home receives clean, filtered water.

References:

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95 - Berkey Water Filters

The previous item on this list focused on using whole house water filters to protect your family from the risks associated with chlorine-treated water.

Berkey Water Filters are a more high-end product targeted towards the more health-conscious consumer who demands top quality results from filtering his or her drinking water.

The Berkey Filter utilizes a solid block of activated carbon, which has micropores that only permit very small molecules through. Chemicals such as pesticides, heavy metals, solvents, chlorine and its byproducts and even viruses and bacteria are removed to over 99.99%.

I have been using one of these for several years. It's fascinating to filter tap water which you thought was clear, through one of these systems and compare the color of the filtered water against the unfiltered - you will suddenly see the coloration in your tap water that you did not even realize was there! All the chlorine smell and taste is gone too. This is a high quality filter that should be perfect for all your drinking and cooking water needs.

Berkey prides itself in a variety of filter systems – their most popular being the portable water systems. They have quite a few models that are "portable" – from the truly portable sports bottle (called "Sport Berkey") to larger, stainless steel containers. These portable filter systems are great for hiking or camping outdoors where there are natural sources of water like rivers or streams to take water from. Another popular filter system is the Berkey Fluoride Water Filter, which filters out fluoride (which is a very common additive to public water sources) from your drinking water. Berkey even offers a shower filter, able to reduce chlorine, dirt, and and odor from shower water. [1][2]

There are other water filtration systems you can choose from but Berkey is definitely among the best. While chlorinated water is able to reduce the number of dangerous microorganisms from public water sources, different studies (see previous chapter) have shown how DBPs or disinfection byproducts could potentially lead to a variety of cancers. You can see **Berkey water filters on Amazon here**.

References:

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[2] Berkey Filters. Berkey Water Filters. http://www.berkeyfilters.com/berkey-water-filters/

96 - Fresh Air - VOC Air Filters

Volatile organic compounds or **VOCs** are "off-gassed" from innumerable industrially-created products. Paint, plywood, plastics, memory foam, photocopiers, resins and adhesives, pesticides, and so many other manufactured items exude small amounts of these chemicals - typically at the highest rate when the product is new and decreasing over time. We are also exposed to them through engine exhaust, tobacco smoke and more.

The risks associated with breathing these chemicals have been greatly increased by the modern lifestyle: Homes have been made very airtight in order to improve energy efficiency / temperature control, and of course the number of synthetic products in our immediate environment has increased massively in the last several decades. In short, modern indoor environments are **VOC traps** – and we spend much of our lives either in rooms or cars, breathing these toxins.

If it doesn't seem that serious, consider that *indoor air quality* is now regarded as one of the top 5 risks to public health!

A wide range of VOCs are quite dangerous to health and are considered carcinogenic. The most risky examples of VOCs include formaldehyde, benzenes, chloroform, and acetaldehyde. Different scientific studies have concluded how these VOCs can contribute to increased cancer risk. [1]

- Formaldehyde exposure has been linked to DNA damage and the development of a blood cancer called leukemia. [2]

- Similarly, benzene exposure has also been associated with hematopoietic malignancies (blood cancers) like leukemia in both adults and children. In utero, early life, and work exposure to benzenes increased the risk for leukemia. [3][4]

- Research done by the CDC has found chloroform to be a potential carcinogen, causing liver and kidney cancer in animal test subjects. [5]

- Further research is still needed on the carcinogenic effects of acetaldehyde but studies have shown a possible link between the chemical and cancer risk. There

was a reported increase in nasal and laryngeal tumor incidence in test subjects exposed to acetaldehyde, causing it to be classified as a probable human carcinogen. [6]

These VOCs may or may not give off a pungent odor but are typically colorless and hard to detect. This makes them even more dangerous because signs and symptoms of toxicity will only appear after a person has been exposed for a long period of time.

In order to protect yourself and your family, consider these two steps
1) get as much fresh air as possible. If you are in a natural environment this is simple - open windows and vents, and spend time outdoors.
2) Get a VOC (gas phase) air filter.

A huge number of people are in urban environments where opening windows is not necessarily going to help the problem! Consider using a VOC filter inside your home or workplace. There are different VOC filters available - either portable or HVAC. Note that gas phase air purification is different from HEPA. **HEPA filters** are particle filters - they remove dust, pollen, fiberglass, lint and so on. VOC filters typically use activated carbon, perhaps in conjunction with permanganate-impregnated alumina.

Another thing to note is that the amount of carbon used is going to affect the air scrubbing ability of the filter. So look for the volume / weight of activated carbon used in the filter as an indicator of quality. Some of the cheaper modern air purifiers use a thin layer of carbon in association with the HEPA filter - well, it's just not going to trap much in the way of VOCs.

One of the most reputable brands of VOC air purifier is **IQAir - here's a link to their products on Amazon**. See also the highly regarded **Aller 5000 Vocarb** (Amazon link) which contains a fantastic 18 pounds of activated carbon!

If you have the construction skill and the kind of property that supports it, you can also consider HVAC-style air purification that utilizes **carbon filters such as these**. Note that these are typically utilized by horticultural systems (especially by weed growers!) because they have a very great ability to remove VOCs from air. Use in conjunction with a HEPA filter – and be aware of the "sequence" of filtering:

Pre-filter ==> VOC filter ==> HEPA filter.

The HEPA filter is placed last in the chain because then it will catch any carbon dust that is released by the activated carbon. Note that I have not investigated building code requirements for HVAC systems so you would need to get consultation on this.

Final note - activated carbon has a lifespan when it comes to absorbing odors and VOCs. Once they are 'full' they will start to release the VOCs back into the air. In short, if the air purifier starts giving off a smell, then it is most likely time to replace the filter.

References:

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97 – Exercise

Personal diet and physical activity, specifically regular exercise, are two lifestyle choices that play very big roles in how "healthy" a person is. While health organizations typically promote these healthy lifestyle choices in order to fight chronic diseases that affect the heart and the body's metabolism, recent studies have also demonstrate mechanisms by which exercise helps prevent cancer.

The National Cancer Institute promotes regular exercise of at least 30 minutes each day for at least five days (or 150 minutes of moderate exercise in a week) to 20 minutes each day (for vigorous exercise) for at least three days. Based on information from different studies, the NCI concludes that regular physical activity can help reduce cancer risk by maintaining good energy balance, hormone levels, and normal body weight or body mass index. [1]

Recent studies also have similar conclusions, specifically in terms of breast, ovarian, and prostate cancer to name a few. In 2015, Schmitz, et. al. found that aerobic exercise helped reduce breast cancer risk in women because it reduced or blunted estrogen levels in the body. Similarly, Sturgeon, et. al in 2016 concluded that aerobic exercise in high-risk premenopausal women could decrease breast cancer risk by helping reduce body fat. Tai, et. al. in the same year concluded that regular exercise reduced the risk and mortality for prostate cancer. Nechuta, et. al. in 2015 conducted a study in 2015 whose findings show a reduction in total cancer risk among test subjects who performed regular exercise. [2][3][4][5]

If you have a few minutes to spare, spend at least half an hour each day exercising. You can directly head to the gym after work (or before work if you wake up early!) or exercise in the comforts of your own home. There are plenty of available exercise programs that can fit your lifestyle.

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98 - Take A Daily Walk

Adequate exercise is an excellent way to keep off the extra pounds and maintain good cardiovascular health. It is able to improve the circulation of blood and lymph in the body, energy levels, wellbeing and overall mood - all factors that can contribute to better health and can significantly contribute to the body's ability to fight out cancer or slow its progression. Different studies have also shown how exercise, specifically walking, is able to reduce cancer risk and mortality.

In 2014, Williams found that walking was able to reduce risk of brain cancer mortality among test subjects. In fact, brain cancer mortality was lower by a striking **42.5 percent** for people who engaged in walking exercises compared to those who didn't or scarcely exercised. The same researcher conducted a similar study in the same year and found that walking reduced kidney cancer risk, independent of other extraneous risk factors like smoking, body mass index, co-morbidities like hypertension and diabetes, and use of medication. In Japan, a study was conducted by Ukawa, et. al. and concluded that daily walking (and less time spent watching the television) could possibly reduce liver cancer risk. [1] [2][3]

Walking, and other similar forms of exercise like running, cycling, and swimming, have all been proven to improve health, particularly in terms of cardiovascular and metabolic health, and more recently, how it can help fight serious chronic diseases like cancer. The American Heart Association recommends at least 150 minutes of moderate exercise (e.g. brisk walking or swimming) or 75 minutes of vigorous exercise (e.g. running, aerobics) each week. Whatever your lifestyle may be, always take a few minutes each day in order to help reduce your risk for cancer. The minimum of 150 minutes of walking can be divided into 30 minutes each day for five days - see it as an investment that will pay back in the long run. [4]

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One of the best ways to protect your health is to choose a good doctor. While our lifestyle choices regarding exercise, diet, and leisure activity play the biggest role in how we stay healthy, there are almost inevitably times when we do get sick. Ultimately, we all have to take a visit to the doctor's office for medical help at some point in our lives. So how do you choose a good doctor?

The best answer is simple – experience. This is why most people prefer having family doctors, or doctors who they have been seeing since they were children (or a doctor who has also treated numerous other family members over the years). A doctor who already knows your personal health history (and your other family members' too!) is more likely to be able to provide the best possible treatment for whatever ails you. But you can look at experience at a more literal way – a doctor who has been in practice for a long time will most likely have been able to handle a variety of cases and can offer you best treatment options.

A study was conducted by RAND Corporation and found that doctors with less experience had higher cost profiles than doctors with more experience. This suggests that less-experienced physicians order more tests and procedures in order to reach a diagnosis – which is taxing on both the patient and the health care system. [1]

Of course, there are also studies that have concluded that experience or length in service is not the only factor to consider in labeling someone a "good doctor". As with any profession, there will always be some who excel.

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100 - Early screening

According to the National Cancer Institute, the cancer burden has a very big impact on society. In 2016, an estimated 1.7 million *new* cases of cancer will be diagnosed in the USA alone, and with the mortality rate being roughly a third of this estimate - that's close to 600,000 Americans dying each year after being diagnosed with cancer. The most common cancers to be diagnosed in 2016 are those that affect the breast, lung, bronchus, colon and rectum, bladder, skin, thyroid, kidney, renal pelvis, pancreas, endometrium, and blood (leukemia). [1]

Living a healthy lifestyle has always been the best piece of advice for any sort of disease, but we have to consider that genetics or heredity plays a significant role in a person's risk for cancer and their diagnosis. Statements like "It runs in the family" can apply to cancer as well, especially for cases of breast and colorectal cancer. The American Cancer Society reports that the percentage of hereditary cancer cases is estimated to be around five to ten percent - so how do you fight your genes? [2]

The answer is simple - **early screening**. In families where several cases of cancer occur, early screening is of paramount importance. A very important diagnostic characteristic for hereditary cancer is that the onset is early - with symptoms possibly showing up in a person's early twenties. There are different types of screening tests available today, each one recommended by different health organizations to reduce mortality rates due to cancer: [3]

- Colonoscopy, sigmoidoscopy, and high-sensitivity fecal occult blood tests for colorectal cancer

- Low-dose helical computed tomography for lung cancer

- Mammography for breast cancer

- Pap smear and Human papillomavirus (HPV) testing for cervical cancer

The best way to fight cancer is to be prepared - and that involves spending more time on and giving more attention to your health. While you may find yearly check-ups and periodical examinations too bothersome, especially if you receive a negative result, remember that it is better to know for sure that you don't have

cancer than to receive a diagnosis late in your life when the disease was progressed too far to treat. Better to be safe than sorry! Visit your doctor to get an idea of which early screening tests best apply to you.

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