



Nutrition and Its Deficiencies in Relationship to Cancer and Prevention

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Abstract

Nutrition is the science that interprets the interaction of nutrients and other substances in food in relation to maintenance, growth, reproduction, health and disease of an organism. It includes food intake (ingestion), digestion, absorption, transport, assimilation, biosynthesis, catabolism, and excretion. In humans, an unhealthy diet can cause deficiency-related diseases such as blindness, anaemia, scurvy, preterm birth, stillbirth and cretinism, or nutrient excess health-threatening conditions such as obesity and metabolic syndrome; and such common chronic systemic diseases as cardiovascular disease, diabetes, and osteoporosis. Under nutrition can lead to wasting in acute cases, and the stunting of marasmus in chronic cases of malnutrition. Nutrition is related to the development of cancer in three ways: (1) food additives or contaminants may act as carcinogens, co-carcinogens, or both; (2) nutrient deficiencies may lead to biochemical alterations that promote neoplastic processes; and (3) changes in the intake of selected macronutrients may produce metabolic and biochemical abnormalities, either directly or indirectly, which increase the risk for cancer. Specific carcinogens play a minor role as initiators in the relationship between nutrition and the development of cancer. Dietary recommendations for cancer prevention typically include an emphasis on vegetables, fruit, whole grains and fish and an avoidance of processed and red meat (beef, pork, and lamb), animal fats, pickled foods and refined carbohydrates.

Keywords

Nutrition, Deficiency Diseases, Cancer, Cancer types, Causes, Prevention

INTRODUCTION

Nutrition is the science that interprets the interaction of nutrients and other substances in food in relation to maintenance, growth, reproduction, health and disease of an organism. It includes food intake (ingestion), digestion and absorption (assimilation), transport, biosynthesis, catabolism, and excretion.

According to a 2015 Academy of Nutrition and Dietetics survey in Central America, populations in developing areas of this region lack basic knowledge of biology and physiology. Beginning with a discussion of basic health concepts and then explaining how nutrition affects our bodies is a good strategy.

Explaining Organ Functions

- Lungs: provide oxygen to blood
- Heart: circulates blood throughout the body
- Stomach: helps digest food
- Intestines: absorb nutrients from food
- Liver: removes toxins from blood and processes nutrients from food
- Kidneys: filter blood of waste and extra fluid

Nutrition

Nutrition is how food affects the health of the body. Food is essential—it provides vital nutrients for survival and helps the body function and stay healthy. Food is comprised of macronutrients including protein, carbohydrate and fat that not only offer calories to fuel the body and give it energy but play specific roles in maintaining health. Food also supplies micronutrients

(vitamins and minerals) and phytochemicals that don't provide calories but serve a variety of critical functions to ensure the body operates optimally.

Macronutrients: Carbohydrate, Protein and Fat

Carbohydrates: The main role of a carbohydrate is to provide energy and fuel the body the same way gasoline fuels a car. Foods such as corn, beans, plantains, rice, potatoes and other root vegetables, bread and fruit deliver sugars or starches that provide carbohydrates for energy.

Energy allows the body to do daily activities as simple as walking and talking and as complex as running and moving heavy objects. Fuel is needed for growth, which makes sufficient fuel especially important for growing children and pregnant women. Even at rest, the body needs calories to perform vital functions such as maintaining body temperature, keeping the heart beating and digesting food.

Protein is found in meats, fish and seafood, eggs, soybeans and other legumes, protein provides the body with amino acids. Amino acids are the building blocks of proteins which are needed for growth, development, and repair and maintenance of body tissues. Protein provides structure to muscle and bone, repairs tissues when damaged and helps immune cells fight inflammation and infection.

Fat: Dietary fat, which is found in oils, coconut, nuts, milk, cheese, meat, poultry and fish, provides structure to cells and cushions membranes to help prevent damage. Oils and fats are also essential for absorbing fat-soluble vitamins including vitamin A, a nutrient important for healthy eyes and lungs.

Micronutrients: Vitamins and Minerals

Vitamins and minerals are food components that help support overall health and play important roles in cell metabolism and neurological functions.

Vitamins aid in energy production, wound healing, bone formation, immunity, and eye and skin health.

Minerals help maintain cardiovascular health and provide structure to the skeleton.

Consuming a balanced diet including fruits, vegetables, dairy, protein foods and whole or enriched grains helps ensure the body has plenty of nutrients to use. Providing a few examples of specific micronutrient functions can enhance the effectiveness of nutrition education:

- **Vitamin A** helps the eyes to see
- **Calcium and magnesium** help muscles and blood vessels relax, preventing cramps and high blood pressure
- **Vitamin C** helps wounds heal and the body's ability to fight off germs
- **Iron** helps the blood transport oxygen throughout the body and prevents anaemia

The Concept of Nutrients as Building Blocks

Building blocks include protein for growing babies in utero, for child and adolescent growth, and for repairing damaged skin, blood, and other body parts in adults who aren't growing. Some parts of the body are replaced regularly, like blood and skin, so even adults are building new body parts regularly. Calcium is also a building block for building bones. Iron is a building block for blood. Since blood cells only last a few months, the body constantly needs more iron and protein to make new blood.

Using Metaphors to Explain Nutrition

According to registered dietician nutritionists with experience teaching nutrition in developing areas of Central America, metaphors and simple concepts are useful in teaching basic nutrition. An example of this could be conveying foods rich in carbohydrate as "go" foods, protein-rich foods as "grow" foods and colourful produce as "glow" foods. Health educators should emphasize that good nutrition requires eating at least one serving of these three types of food at each meal:

Foods	Simple Concept of Function
Carbohydrate-rich foods	Fuel
Protein-rich foods	Building blocks
Fruits and Vegetables	Helpers and protectors

Nutrient Deficiencies That Are Incredibly Common

Many nutrients are absolutely essential for good health. It is possible to get most of them from a balanced, real food-based diet. However, the typical modern diet lacks several very important nutrients. A nutritional deficiency occurs when the body doesn't absorb or get from food the necessary amount of a nutrient. Deficiencies can lead to a variety of health problems. These can include digestion problems, skin disorders, stunted or defective bone growth, and even dementia. The amount of each nutrient you should consume depends on your age. In the United States, many foods that you buy in the grocery store — such

as cereals, bread, and milk — are fortified with nutrients that are needed to prevent nutritional deficiency. But sometimes your body is unable to absorb certain nutrients even if you're consuming them. It's possible to be deficient in any of the nutrients your body needs.

In humans, an unhealthy diet can cause deficiency-related diseases such as blindness, anaemia, scurvy, preterm birth, stillbirth and cretinism, or nutrient excess health-threatening conditions such as obesity and metabolic syndrome; and such common chronic systemic diseases as cardiovascular disease, diabetes, and osteoporosis. Under nutrition can lead to wasting

in acute cases, and the stunting of marasmus in chronic cases of malnutrition.

Diet and cancer

Cancer is a generic term for a large group of diseases characterized by the growth of abnormal cells beyond their usual boundaries that can then invade adjoining parts of the body and/or spread to other organs. Other common terms used are malignant tumours and neoplasms. Cancer can affect almost any part of the body and has many anatomic and molecular subtypes that each requires specific management strategies.

Cancer is the second leading cause of death globally and is estimated to account for 9.6 million deaths in 2018. Lung, prostate, colorectal, stomach and liver cancer are the most common types of cancer in men, while breast, colorectal, lung, cervix and thyroid cancer are the most common among women.

Dietary factors are recognized as having a significant effect on the risk of cancers, with different dietary elements both increasing and reducing risk. Diet and obesity may be related to up to 30-35% of cancer deaths, while physical inactivity appears to be related to 7% risk of cancer occurrence. One review in 2011 suggested that total caloric intake influences cancer incidence and possibly progression. While many dietary recommendations have been proposed to reduce the risk of cancer, few have significant supporting scientific evidence. Obesity and drinking alcohol have been correlated with the incidence and progression of some cancers. Lowering the drinking of beverages sweetened with sugar is recommended as a measure to address obesity. A diet low in fruits and vegetables and high in red meat has been implicated but not confirmed, and the effect may be small for well-nourished people who maintain a healthy weight. Some specific foods are linked to specific cancers. Studies have linked eating red or processed meat to an increased risk of breast cancer, colon cancer, prostate cancer, and pancreatic cancer, which may be partially explained by the presence of carcinogens in foods cooked at high temperatures. Aflatoxin B1, a frequent food contaminant causes liver cancer, but drinking coffee is associated with a reduced risk. Betel nut chewing causes oral cancer. Pickled vegetables are directly linked to increased risks of several cancers. The differences in dietary practices may partly explain differences in cancer incidence in different countries. For example, stomach cancer is more common in Japan due to its high-salt diet and colon cancer is more common in the United States. Immigrant communities tend to develop the risk of their new country, often within one generation, suggesting a substantial link between diet and cancer.

Dietary recommendations for cancer prevention typically include weight management and eating "mainly vegetables, fruit, whole grains and fish, and a

reduced intake of red meat, animal fat, and refined sugar."

Nutrition is related to the development of cancer in three ways: (1) food additives or contaminants may act as carcinogens, co - carcinogens, or both; (2) nutrient deficiencies may lead to biochemical alterations that promote neoplastic processes; and (3) changes in the intake of selected macronutrients may produce metabolic and biochemical abnormalities, either directly or indirectly, which increase the risk for cancer. Specific carcinogens play a minor role as initiators in the relationship between nutrition and the development of cancer.

Acute deficiencies of vitamins and minerals are rare in developed countries, but suboptimal nutrient intake — less than the recommended daily allowance (RDA) — is a widespread problem. Research indicates that considerable metabolic damage can still occur when nutrient intake levels fall below the RDA — even though they might not cause acute disease.

Evidence indicates that deficiencies of iron and zinc, and the vitamins folate, B12, B6 and C, can cause DNA damage and lead to cancer.

New animal bioassays of nutritional deficiencies are needed, particularly for studying cancer.

Reduced folate intake has been associated with cancer. Folate, B6 and B12 deficiencies cause the incorporation of deoxyuracil into DNA, leading to DNA breakage, and could promote tumorigenesis.

The relationship of vitamin and mineral deficiencies and cancer is extremely complex. An integrated analysis of the findings from epidemiological, animal-model, metabolic and intervention studies, as well as from genetic polymorphism research, is required.

Approaches to eliminating micronutrient deficiencies include improving diet, fortifying foods and providing multivitamin and mineral supplements. Prevention strategies such as these could have a significant impact on cancer and public health, with minimal risk being involved.

Understanding Cancer -- the Basics

What Is Cancer?

Throughout our lives, healthy cells in our bodies divide and replace themselves in a controlled fashion. Cancer starts when a cell is somehow altered so that it multiplies out of control. A tumor is a mass composed of a cluster of such abnormal cells.

Most cancers form tumors, but not all tumors are cancerous.

Benign, or noncancerous, tumors do not spread to other parts of the body, and do not create new tumors. Malignant, or cancerous, tumors crowd out healthy cells, interfere with body functions, and draw nutrients from body tissues.

Cancers continue to grow and spread by direct extension or through a process called metastasis,

whereby the malignant cells travel through the lymphatic or blood vessels -- eventually forming new tumors in other parts of the body.

Cancer: The term "cancer" encompasses more than 100 diseases affecting nearly every part of the body, and all are potentially life-threatening.

The major types of cancer are carcinoma, sarcoma, melanoma, lymphoma, and leukaemia. Carcinomas -- the most commonly diagnosed cancers -- originate in the skin, lungs, breasts, pancreas, and other organs and glands. Lymphomas are cancers of lymphocytes. Leukaemia is cancer of the blood. It does not usually form solid tumors. Sarcomas arise in bone, muscle, fat, blood vessels, cartilage, or other soft or connective tissues of the body. They are relatively uncommon. Melanomas are cancers that arise in the cells that make the pigment in skin.

Cancer has been recognized for thousands of years as a human ailment, yet only in the past century has medical science understood what cancer really is and how it progresses. Cancer specialists, called oncologists, have made remarkable advances in cancer diagnosis, prevention, and treatment.

Top 10 Cancer Causing Foods: Understanding what Causes Cancer

You know the seriousness of cancer. You know the toll it takes mentally, emotionally, financially, spiritually, and physically. It causes stress in your own mind and body as well as in your relationships with friends and family. Cancer treatments can make it hard to do the things you've always done as a human being, a parent, or an employee.

There's nothing in your daily existence that cancer doesn't touch. It's an exhausting villain to fight and it wipes you out in so many ways that are hard to explain to people who haven't felt the impact of this horrific disease in their own lives.

What if I told you there was something you could do right now to cut your cancer risk in half? That's right, in half!

If you knew there was a way to prevent cancer from ever invading your life and turning it upside down... would you do it?

People talk a lot about "cures" in the health industry but there's a saying you probably heard from your grandparents that makes a lot more sense...

"An ounce of prevention is worth a pound of cure."

At The Truth about Cancer we talk a lot about what causes cancer, and the foods that fight cancer and lower your cancer risk. Now I'm going to talk to you about known, scientifically proven, cancer causing foods that actively increase the chance that you'll be diagnosed with cancer in your lifetime.

There are cases where it strikes quickly but it is more common when cancerous tumors manifest after years of specific habits. Good examples of this are smoking,

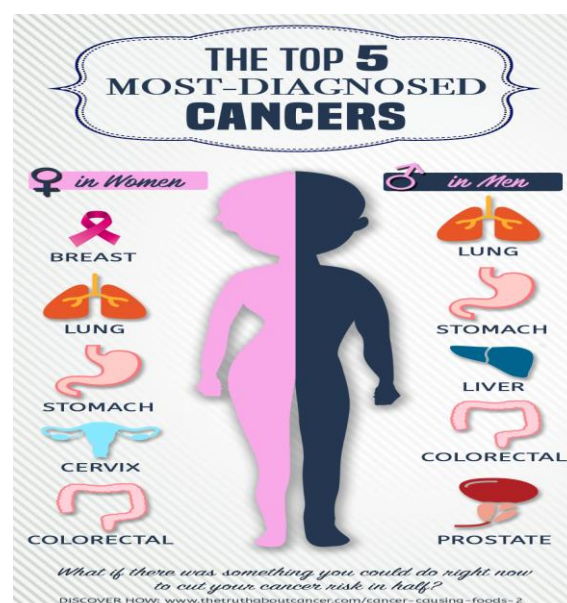
exposure to radiation (i.e. from cell phones), and overexposure to ultraviolet rays, which result in lung cancer, brain cancer, and skin cancer, respectively.

Experts estimate that more than half the cases of cancer are preventable with lifestyle changes.

In 2012, the World Health Organization (WHO) reported more than 14 million new cases of cancer... which resulted in more than 8.2 million deaths worldwide. They expect these numbers to skyrocket over the next twenty years by a whopping 70% globally!

The top 5 most-diagnosed cancers in men: lung, prostate, colon/colorectal, stomach, and liver.

The top 5 most-diagnosed cancers in women: breast, colon/colorectal, lung, cervix, and stomach.



I point this out because you'll note that several of the most common (and aggressive) cancers have to do with your gastrointestinal system. The function of your body that processes the food you eat, distributes it around your body as needed, and does its best to dump the leftover toxins.

That makes it a major area of your daily life that dramatically affects your prevention -- and ultimately your survival -- of cancer. The food and beverages you consume, the fuel your body uses to fight disease, is critical to your overall wellbeing.

Some foods are worse for you than others and are increasing your risk of many conditions and diseases. While cancer is one of the worst, regularly eating the cancer-causing foods in our top ten list can also lead to heart disease, diabetes, chronic inflammation, and so much more.

What Causes Cancer?

Understanding possible causes of cancer comes down to understanding the causes of gene and DNA mutations. Chemicals (like carcinogens), radiation,

obesity, hormones, chronic inflammation, smoking, viruses, and a number of other factors have been found to be cancer causing.

In an interview with Bob Wright from the American Anti-Cancer Institute for my The Quest For The Cures docu-series, I asked him what causes cancer in cells. His reply was that "Cancer is caused by chemicals and radiation. You can explode that out to many different types of chemicals whether it's what you put in your body, what you breath, what you eat, radiation from all sources – women from mammograms, from CT scans, from your cell phones, your cell towers, your Wi-Fi. Cancer is caused by chemicals and radiation, period."

If Bob is correct that the primary causes for cancer are chemicals and radiation, then both of these factors can be greatly reduced through the food and lifestyle choices that you make.

Top 10 Cancer Causing Foods to Cut Your Cancer Risk in Half

1. Genetically Modified Foods (GMOs): The rapidly growing industries of genetically modified crops are infiltrating our food supply at an alarming rate. More than 90% of our corn and soy are now genetically modified. This fairly new practice is the source of many debates. Experts agree that adequate testing was not done before GMO foods were added to the ingredient listing of thousands of products. In other words, no one – including the growers and manufacturers of GMO foods – knows the long-term effect they will have on human health. Look for GMO-free labels whenever possible or buy organic (which always means a product is not genetically modified).

2. Microwave Popcorn: From the chemically lined bag to the actual contents, microwave popcorn is at the centre of lung cancer debates around the world. Not only are the kernels and oil likely GMO (which the manufacturer does not have to disclose) unless organic, the fumes released from artificial butter flavouring contain diacetyl, which is toxic to humans. Make your own organic popcorn the old-fashioned way – it tastes better, doesn't release toxic fumes, and is a healthier choice for you.

3. Canned Goods: Most cans are lined with a product called bisphenol-A (BPA), which has been shown to genetically alter the brain cells of rats. Many plastic goods, thermal paper, water lines, and many dental composites also contain BPA. Help protect your DNA by sticking to fresh or frozen vegetables that have no added ingredients for your family's table! These are better for you and available year-round.

4. Grilled Red Meat: While grilled food can taste delicious, scientists have discovered that preparing meats in this way – especially processed meats like hot dogs – releases a carcinogen called heterocyclic aromatic amines. When you grill red meat to the point

of well-done, it changes the chemical and molecular structure of the meat. You're better off baking, broiling, or preparing meat in a skillet than on the grill.

5. Refined Sugar: The biggest cancer-causing food (by far) is high-fructose corn syrup (HFCS) and other refined sugars. Even brown sugar is highly refined white sugar with some of the removed molasses added back in for flavour and colour. Refined sugars (and foods made with them) are the source of major insulin spikes and feed the growth of cancer cells. Since the majority of the sugar supply in the U.S. is made using genetically modified (GMO) sugar beets, a healthier option is organic honey, coconut sugar, or maple sugar. Now that oncologists are using diabetes medication to fight cancer cells, there's no doubt (finally) that those mutated cancer cells love sugar.

6. Salted, Pickled, and Smoked Foods: These products typically contain preservatives, such as nitrates, which are intended to prolong shelf life. The additives used in processed foods can accumulate in your body over time. Eventually, such toxins cause damage at the cellular level and lead to diseases like cancer. When smoked foods are cooked at high temperatures, the nitrates are converted to the much more dangerous nitrites. (Note: By pickled foods we don't mean the fermented foods you make at home.)

7. Soda and Carbonated Beverages: Sodas have been at the centre of the health debate for two decades as a major cancer-causing food. Filled with high-fructose corn syrup (HFCS), dyes, and a host of other chemicals, they are very bad for every aspect of your health. They provide zero nutritional value and rob your body of the nutrients you get from other foods. Adding "diet" to the label means you're also likely consuming aspartame – which is no better than rat poison to human cells.

8. White Flour: When flour is refined, all nutritional value is removed. Then it's bleached with chlorine gas to make it more appealing to consumers. The glycemic index for white flour is very high – meaning it spikes your insulin levels without providing nutritional fuel. Carbohydrates are converted to sugars by your body, so excessive products that contain white flour can lead to increased insulin resistance. Simple sugars (like refined carbohydrates) are the preferred fuel source for cancer.

9. Farmed Fish: Commercial fish farming involves raising an incredible number of fish (such as salmon), in a crowded environment. More than 60% of the salmon consumed in the United States comes from a farming operation where they are treated with antibiotics, pesticides, and other carcinogenic chemicals to try and control the bacterial, viral, and parasitic outbreaks that result from cramming so many fish in a small space. Farmed fish also don't have as much omega-3 as wild salmon.

10. Hydrogenated Oils: Vegetable oils are chemically extracted from their source, chemically treated, and more chemicals are added to change the smell and taste. They're packed with unhealthy omega-6 fats (that Americans already consume way too much of) and have been proven to alter the structure of our cell membranes.

4 Steps to Help Prevent Cancer

In addition to the 10 foods listed above, also be sure to avoid any food labelled as "diet," "light," or "fat-free." In order to remove fat or natural calories, they are replaced with chemicals that are dangerous to your body.

Instead of consuming food products that manufacturers claim is "good for you" – follow these

four anti-cancer diet tips to prevent cancer the easy way:

1. Eat organic whenever possible.
2. Choose raw or clean frozen if availability of fresh product isn't good in your area.
3. Fill half your plate each meal with non-starchy vegetables. If you eat animal products, make sure they're pastured and grass-fed meats and dairy goods (including eggs). Use only high-quality oils such as coconut oil, olive oil, ghee, or grass-fed butter.
4. Cut back drastically on grains and sugars.

Not only will eliminating these foods lower your cancer risk, you're going to feel (and look) better from the inside out. Now that you know what the top cancer-causing foods are, what are you going to do about their presence in your kitchen and your daily eating plan?

CONCLUSION:

Cancerous Foods	Alternatives
Genetically Modified Foods (GMOs)	Organic Foods
Microwave Popcorn (Lung Cancer)	Traditional way Healthier Popcorn
Canned Foods (BPA)	Fresh and Frozen Food
Grilled Red Meat (Heterocyclic Aromatic Amines)	Prepare meat by Baking, Broiling or in a skillet than on the grill
Refined / Brown Sugar	Organic Honey, Coconut sugar or maple sugar
High Fructose Corn syrup (HFCS)	
Salted, Pickled and Smoked Foods (have Nitrates ----- > Nitrites)	Fermented Foods prepared at home.
Soda and Carbonated Beverages (HFCS)	Coconut water or fruit juices
DIET = added Aspartame	
White / Refined Flour (Insulin Resistance)	Wheat Flour or Ragi Flour Etc
Farmed Fish	
Hydrogenated Oils (Omega-6 fats alter structure of cell membranes)	Wild Fish (Rich in Omega – 3) High quality coconut oil, Olive oil, Ghee or grass-fed butter

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THE TRUTH ABOUT CANCER PRESENTS

Top Ten CANCER CAUSING FOODS TO AVOID

Did you know that more than half the cases of cancer diagnosed in the U.S. are preventable with lifestyle and diet changes? While cancer is one of the worst, regularly eating these ten foods can also lead to heart disease, diabetes, and chronic inflammation.

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1

Genetically Modified Foods (GMOs)

Here's a scary statistic... More than 90% of our corn and soy are now genetically modified! The rapidly growing industry of genetically modified crops is infiltrating our food supply.
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2

Microwave Popcorn

Watch out for the fumes and GMOs! Not only are the kernels and oil likely GMO, but the fumes released from artificial butter flavoring contain diacetyl, which is toxic to humans.
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3

Canned Goods

Did you know most cans are lined with a product called BPA, which has been shown to genetically alter the brain cells of rats? BPA can also be found in plastic goods, thermal paper, water lines, and many dental composites.
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4

Grilled Red Meat

While grilling sure does taste delicious, scientists have discovered that preparing meats this way changes the chemical and molecular structure of the meat. No, thank you!
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5

Refined Sugar

Known to spike your insulin levels and feed the growth of cancer cells, refined sugars are the BIGGEST threat to your health. To make things worse, the majority of the sugar supply in the U.S. is made using GMO sugar beets!
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6

Salted, Pickled, and Smoked Foods

To prolong shelf life, processed foods are filled with preservatives! These chemicals cumulate in your body eventually causing damage at the cellular level, leading to disease.
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7

Soda and Carbonated Beverages

Filled with high-fructose corn syrup, dyes, and other chemicals, sodas provide ZERO nutritional value and can rob your body of the good nutrients you get from other foods. Yes, this includes diet soda too!
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8

White Flour

When flour is refined, all nutritional value is removed and then it is bleached with chlorine gas! Not only that, since white flour is so high on the glycemic index, products that contain excess amounts can lead to increased insulin resistance.
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9

Farmed Fish

60% of farmed salmon is treated with antibiotics, pesticides, and other carcinogenic chemicals. Gross!
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10

Hydrogenated Oils

Vegetable oils are chemically extracted from their source, then they are chemically treated, and then more chemicals are added to change the smell and taste. Talk about artificial...

DON'T FORGET

Any food that is listed as "diet," "light," or "fat-free" should be avoided at all costs! In order to remove fat or natural calories, they are replaced with dangerous chemicals.

TIP

If you want to avoid all potentially cancer-causing foods, stick to eating organic fruits and vegetables, grass-fed meats, and organic dairy products.

Read the full article here:
<http://thetruthaboutcancer.com/cancer-causing-foods-2/>

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