

# Cancer in the African-American Community

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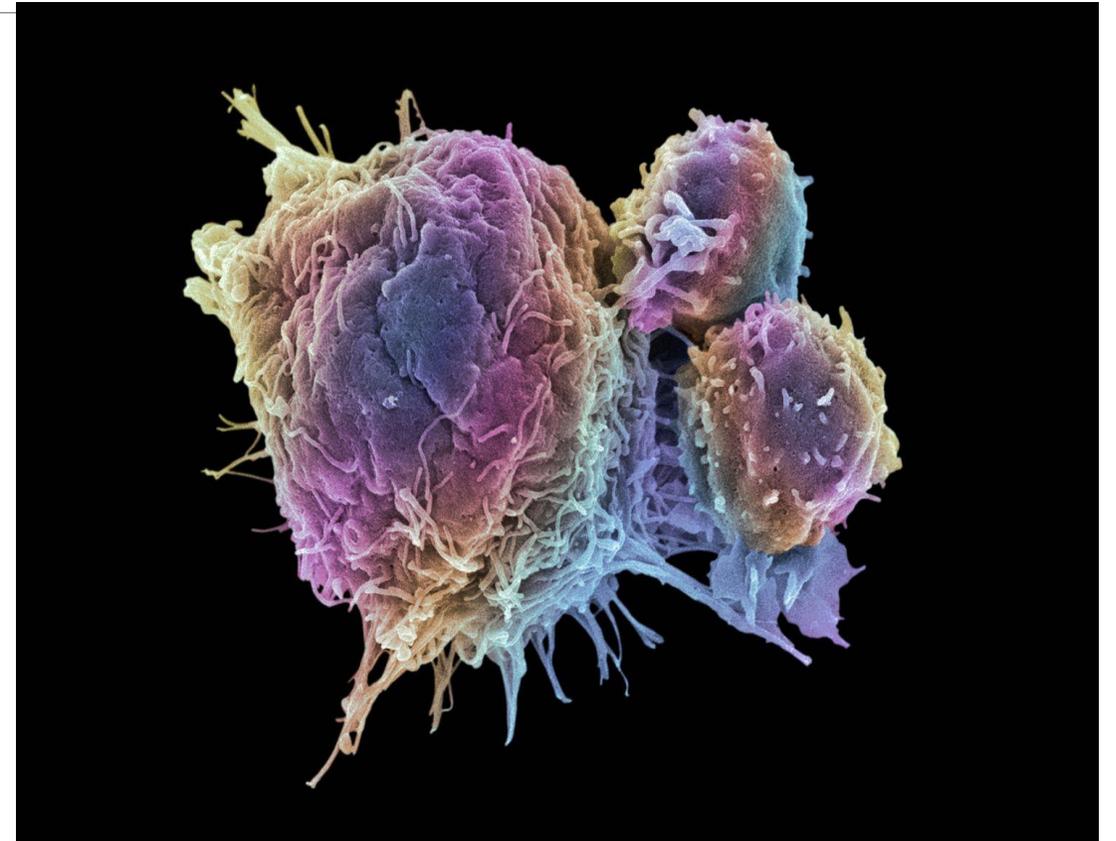
INDIAN HEALTH SERVICE



# What Is Cancer?

The general scientific definition of cancer is uncontrolled growth.

Basically, this means that the body loses its ability to regulate growth of any body part.



# Body Piercing and Tumors

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Some people have rather sensitive skin and the trauma of frequent shaving or body piercing can result in overgrowth and inflammation of affected area.

Keloids represent an overgrowth of underlying skin and does not cause cancer.

It is localized (does not spread), is irritating but does not travel to other body areas.



# Distinction between Tumor and Cancer

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If this overgrowth of cells/organs stays in one area, it is often referred to as a **tumor**.

- A keloid can be considered a benign tumor from the standpoint that it will not spread to your liver, etc.
- This overgrowth can be removed surgically and the patient is considered cured, although the trauma of removing the tumor often causes it to return.

Cancer is when the overgrowth of cells proliferates or spreads to other parts of the body.



# Tumor vs Cancer

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Tumors are localized and can be thought of as one weed growing in your yard.

Cancer depending on the location and cell type can be thought of as a dandelion growing in your yard on a windy day. As the wind blows the dandelions across the yard, new dandelions take root and you end up with multiple new cancers in different parts of the body.

Another word for cancer is neoplasm, neo- meaning new and –plasm for growth.

You may have also heard the word mets, metastatic, metastases, malignancy and this all refers to the process of cancer cells traveling via the bloodstream to other parts of the body.

If you subscribe to European mythology, the term cancer bears it's name from the fact that crab latches (or spreads) onto different parts of the body.

- Cancer invades nearby tissues like the claws of the crab.
- Breast cancer can spread to your spine, brain, and other places.

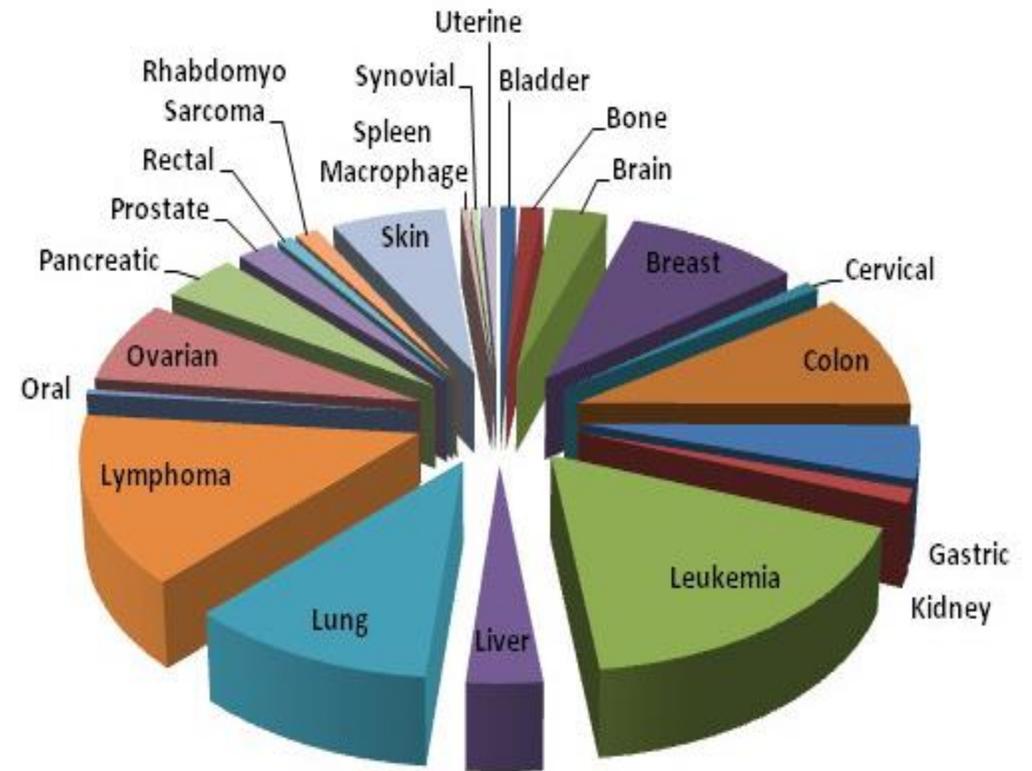


# Cancer Types

There are over 200 different types of cancer as reported by the ACS excluding non-melanoma skin cancer. Estimated annual incidence greater than 40,000.

Common cancer types include:

- Bladder (80,470 in 2019, estimated with 17,670 deaths)
- Breast (most common with 271,270 in 2019, estimated with 268,600 female, 2,670 male with 41,760 deaths female and 500 male deaths)
- Colorectal (145,600 in 2019, estimated with 51,020 deaths)
- Endometrial (61,880 in 2019, estimated with 12,160 deaths)
- Kidney, renal cell and renal pelvis (73,820 in 2019, estimated with 14,770 deaths)
- Leukemia (all types) (61,780 in 2019, estimated with 22,840 deaths)
- Liver & intrahepatic bile duct (42,030 in 2019, estimated with 31,780 deaths)
- Lung (228,150 in 2019, estimated with 142,670 deaths)
- Melanoma (96,480 in 2019, estimated 7,230 deaths)
- Non-Hodgkin Lymphoma (74,200 in 2019, estimated with 19,970 deaths)
- Pancreatic (56,770 in 2019, estimated with 45,750 deaths)
- Prostate (174,650 in 2019, estimated with 31,620 deaths)
- Thyroid (52,070 in 2019, estimated with 2,170 deaths)



# Cancer Statistics, according to NIH, NCI

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Remember that statistics and trends do not apply to individuals, they apply to large groups of people.

In 2018, an estimated 1,735,350 new cases of cancer will be diagnosed in the United States and 609,640 people will die from the disease.

The number of new cases of cancer (cancer [incidence](#)) is 439.2 per 100,000 men and women per year (based on 2011–2015 cases).

The number of cancer deaths (cancer [mortality](#)) is 163.5 per 100,000 men and women per year (based on 2011–2015 deaths).

Cancer mortality is higher among men than women (196.8 per 100,000 men and 139.6 per 100,000 women). When comparing groups based on race/ethnicity and sex, cancer mortality is highest in African American men (239.9 per 100,000) and lowest in Asian/Pacific Islander women (88.3 per 100,000).

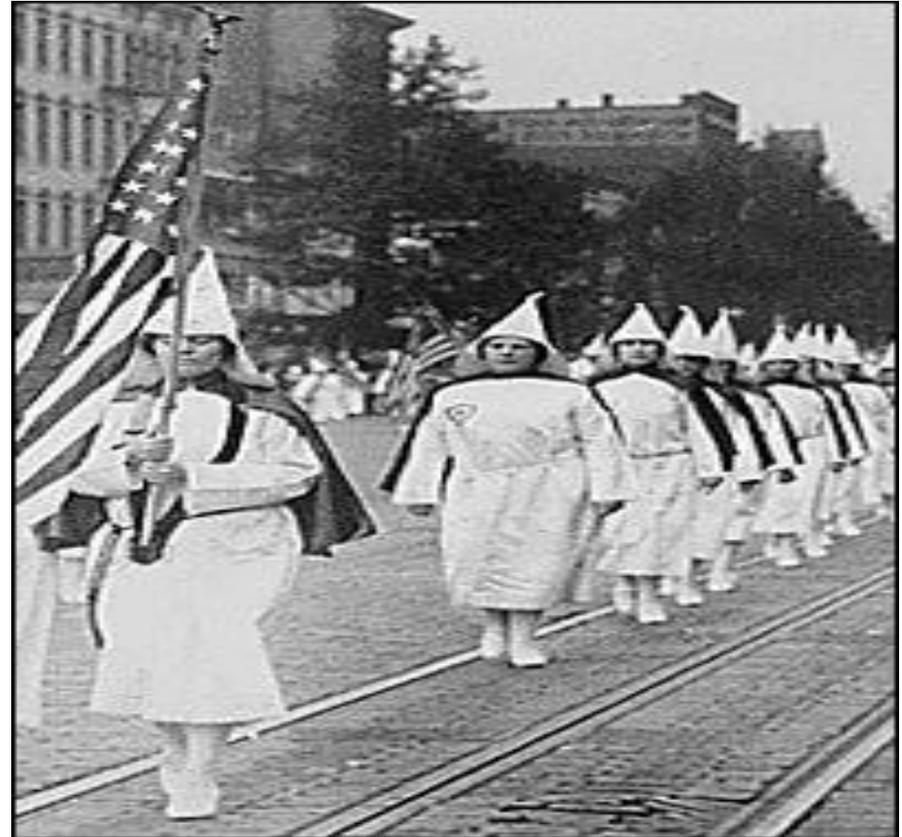
# Historical Perspective

Life is a continuum. Meaning that our yesterdays affect our todays and our todays affect our tomorrows.

African-Americans have historically been disenfranchised from health care. And, in many cases, we have been the victims of medical malpractice.

Demolition of segregated and successful black endeavors (think Black Wall Street, Rosewood, 246 years of legal and sanctioned slavery, indentured servitude, Jim Crow era) promotes a degree of demoralization and lack of desire to promote good health that the world has not seen.

To ignore this reality is to do minority populations a grave disservice as it applies to the application of health care, socioeconomics, increased risk of substance abuse and other unhealthy lifestyles.



# Tuskegee Syphilis Experiment

The Tuskegee Study of Untreated Syphilis in the Negro Male was an infamous and unethical clinical study conducted between 1932 and 1972 by the U.S. Public Health Service. The purpose of this study was to observe the natural history of untreated syphilis; the African-American men in the study were told they were receiving free health care from the United States government.



# Henrietta Lacks Story

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**Henrietta Lacks** (born **Loretta Pleasant**; August 1, 1920 – October 4, 1951)<sup>[2]</sup> was an [African-American](#) woman<sup>[3]</sup> whose cancer cells are the source of the [HeLa](#) cell line, the first [immortalized cell line](#) and one of the most important cell lines in medical research. An immortalized cell line reproduces indefinitely under specific conditions, and the HeLa cell line continues to be a source of invaluable medical data to the present day.<sup>[4]</sup>



# Historical Perspective

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# Surveillance, Epidemiology, and End Results

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In the United States, the overall cancer death rate has declined since the early 1990s. The most recent [SEER Cancer Statistics Review](#), (Surveillance, Epidemiology, and End Results Program) released in April 2018, shows that cancer death rates decreased by:

1.8% per year among men from 2006 to 2015

1.4% per year among women from 2006 to 2015

1.4% per year among children ages 0–19 from 2011 to 2015

This applies to individuals having regular access to health care and statistics may vary for those without access to health care.

# Risk Factors for Cancer

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It is usually not possible to know exactly why one person develops cancer and another doesn't.

Research has shown that certain risk factors may increase a person's chances of developing cancer.

There are also factors that are linked to a lower risk of cancer. These are sometimes called protective risk factors, or just protective factors.

Cancer risk factors include exposure to chemicals or other substances, as well as certain behaviors. They also include things people cannot control, like age and family history.

A family history of certain cancers can be a sign of a possible inherited cancer syndrome. (See the [Hereditary Cancer Syndromes](#) section for more information about inherited genetic mutations that can cause cancer.)

# Cancer Risk and Protective Factors

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Such studies, on their own, cannot prove that a behavior or substance causes cancer.

For example, the finding could be a result of chance, or the true risk factor could be something other than the suspected risk factor.

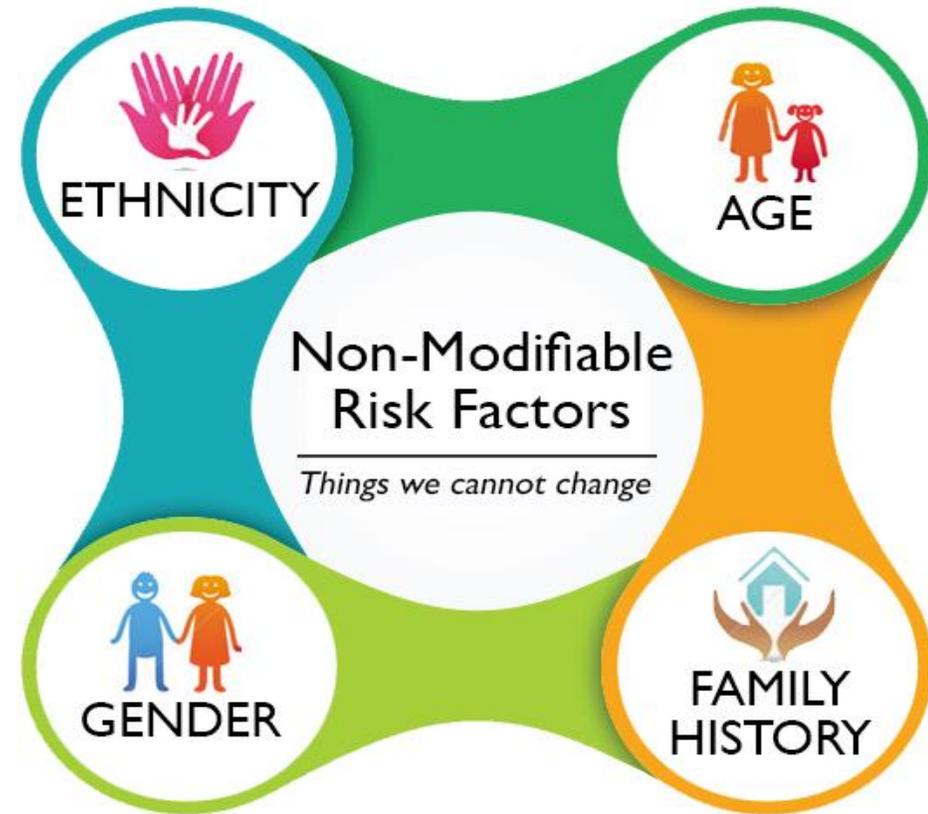
But findings of this type sometimes get attention in the media, and this can lead to wrong ideas about how cancer starts and spreads.

When many studies all point to a similar association between a potential risk factor and an increased risk of cancer, and when a possible mechanism exists that could explain how the risk factor could actually cause cancer, scientists can be more confident about the relationship between the two.

# Life is a Gamble

## Fixed/uncontrollable/non-modifiable risk factors

- Family history (certain cancers run in certain families)
  - So, a first degree relative increases your risk of developing similar cancer.
- Age: as we grow older, our risk for cancer increases



# Things that We Can Control

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## Modifiable risk factors

- Tobacco
- Sun exposure although the degree of melanin reduces UVA/UVB absorption
- Radiation exposure
- Chemical exposure
- Virus exposure (Hep B and liver cancer)
- Alcohol
- Poor diet
- Obesity



# Known or Suspected Risk Factors for Cancer

The subsequent list includes the most-studied known or suspected risk factors for cancer.

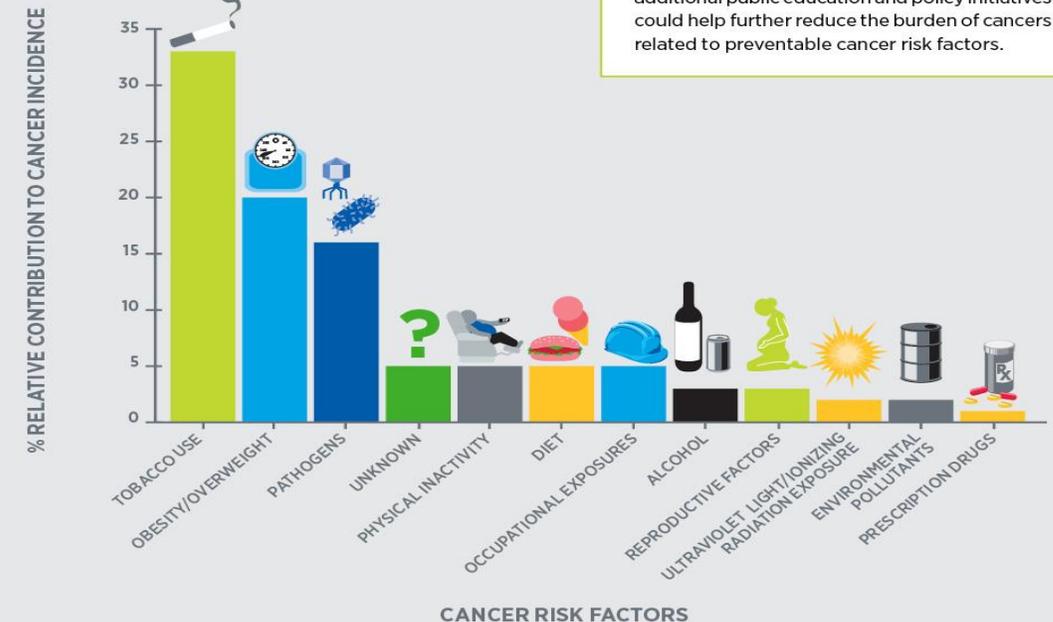
Although some of these risk factors can be avoided, others—such as growing older—cannot.

Limiting your exposure to avoidable risk factors may lower your risk of developing certain cancers.

Figure 4

## Risky Business

Research has identified numerous factors that increase an individual's risk for developing cancer. By modifying behavior, individuals can eliminate or reduce many of these risks and thereby reduce their risk of cancer. Developing and implementing additional public education and policy initiatives could help further reduce the burden of cancers related to preventable cancer risk factors.



American Association for Cancer Research (AACR) Cancer Progress Report 2017

# Age

Age: Advancing age is the most important risk factor for cancer overall, and for many individual cancer types.

According to the most recent statistical data from [NCI's Surveillance, Epidemiology, and End Results program](#), the median age of a cancer diagnosis is 66 years.



# Alcohol

Drinking alcohol can increase your risk of cancer of the mouth, throat, esophagus, larynx (voice box), liver, and breast.

- The more you drink, the higher your risk.
- The risk of cancer is much higher for those who drink alcohol and also use tobacco.
- Doctors advise people who drink to do so in moderate amounts.
- The federal government's Dietary Guidelines for Americans defines moderate alcohol drinking as up to one drink per day for women and up to two drinks per day for men.
- It has been suggested that certain substances in red wine, such as resveratrol, have anticancer properties. However, there is no evidence that drinking red wine reduces the risk of cancer.



# Cancer Causing Substances

Cancer is caused by changes to certain genes that alter the way our cells function.

Some of these genetic changes occur naturally when DNA is replicated during the process of cell division. But others are the result of environmental exposures that damage DNA.

These exposures may include substances, such as the chemicals in tobacco smoke, or radiation, such as ultraviolet rays from the sun.

People can avoid some cancer-causing exposures, such as tobacco smoke and the sun's rays. But other ones are harder to avoid, especially if they are in the air we breathe, the water we drink, the food we eat, or the materials we use to do our jobs.

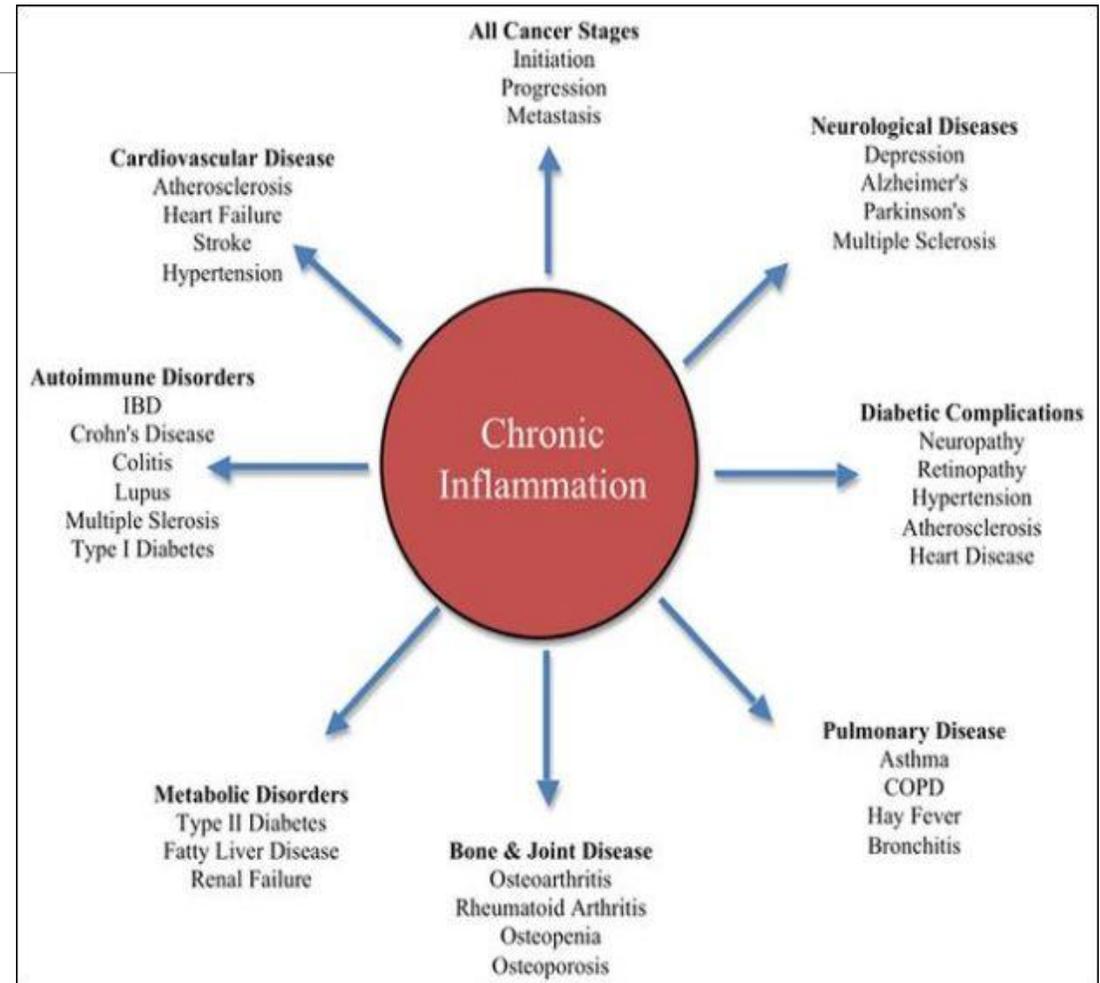
Scientists are studying which exposures may cause or contribute to the development of cancer. Understanding which exposures are harmful, and where they are found, may help people to avoid them.

Please visit the NIH NCI website for a complete list of substances at: <https://www.cancer.gov/about-cancer/causes-prevention/risk/substances>



# Chronic Inflammation

- In chronic inflammation, the inflammatory process may begin even if there is no injury, and it does not end when it should.
- Why the inflammation continues is not always known.
- Chronic inflammation may be caused by infections that don't go away, abnormal immune reactions to normal tissues, or conditions such as obesity.
- Over time, chronic inflammation can cause DNA damage and lead to cancer.
- For example, people with chronic inflammatory bowel diseases, such as IBD, [ulcerative colitis](#) and [Crohn disease](#), have an increased risk of colon cancer.



# Normal Process of Inflammation

[Inflammation](#) is a normal physiological response that causes injured tissue to heal.

An inflammatory process starts when chemicals are released by the damaged tissue.

In response, white blood cells make substances that cause cells to divide and grow to rebuild tissue to help repair the injury.

Once the wound is healed, the inflammatory process ends.

## TYPES OF INFLAMMATION

### ACUTE “GOOD” INFLAMMATION



A **serious** threat triggers inflammation (a cut, bruise, infection, etc.)



The body releases inflammatory compounds



The job gets done & anti-inflammatory compounds are released. The body goes back to business as usual

### CHRONIC “BAD” INFLAMMATION



A non-serious event triggers inflammation (eating a certain food, acne bacteria, etc.)



The body releases inflammatory compounds



The body *doesn't* release anti-inflammatory compounds and keeps sending an inflammatory response

# Diet

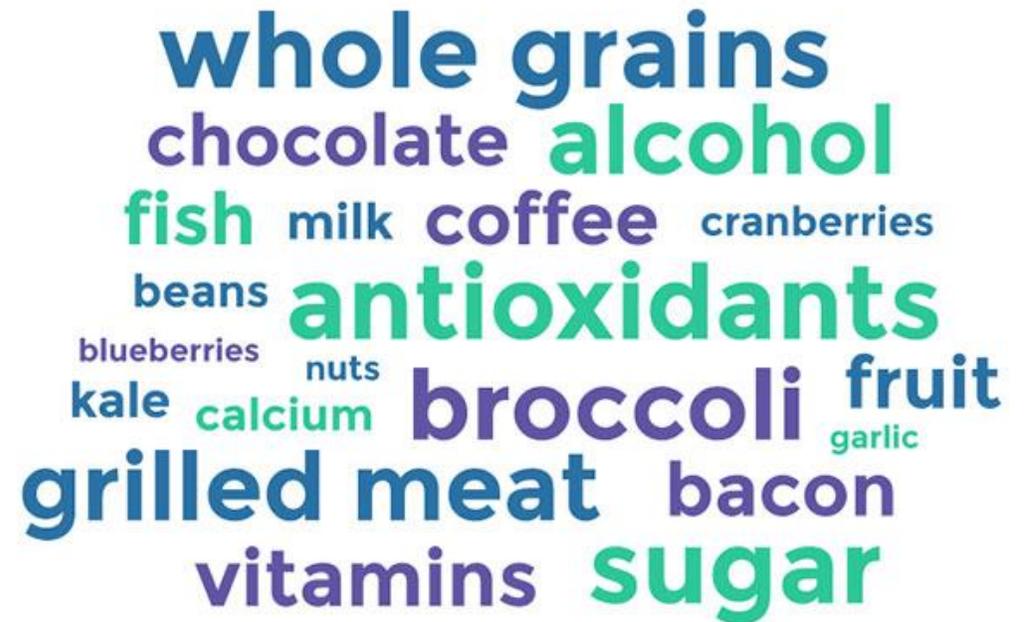
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Many studies have looked at the possibility that specific dietary components or [nutrients](#) are associated with increases or decreases in cancer risk.

Studies of cancer cells in the laboratory and of animal models have sometimes provided evidence that isolated compounds may be carcinogenic (or have anticancer activity).

But with few exceptions, studies of human populations have not yet shown definitively that any dietary component causes or protects against cancer.

Sometimes the results of [epidemiologic](#) studies that compare the diets of people with and without cancer have indicated that people with and without cancer differ in their intake of a particular dietary component.



# Hormones

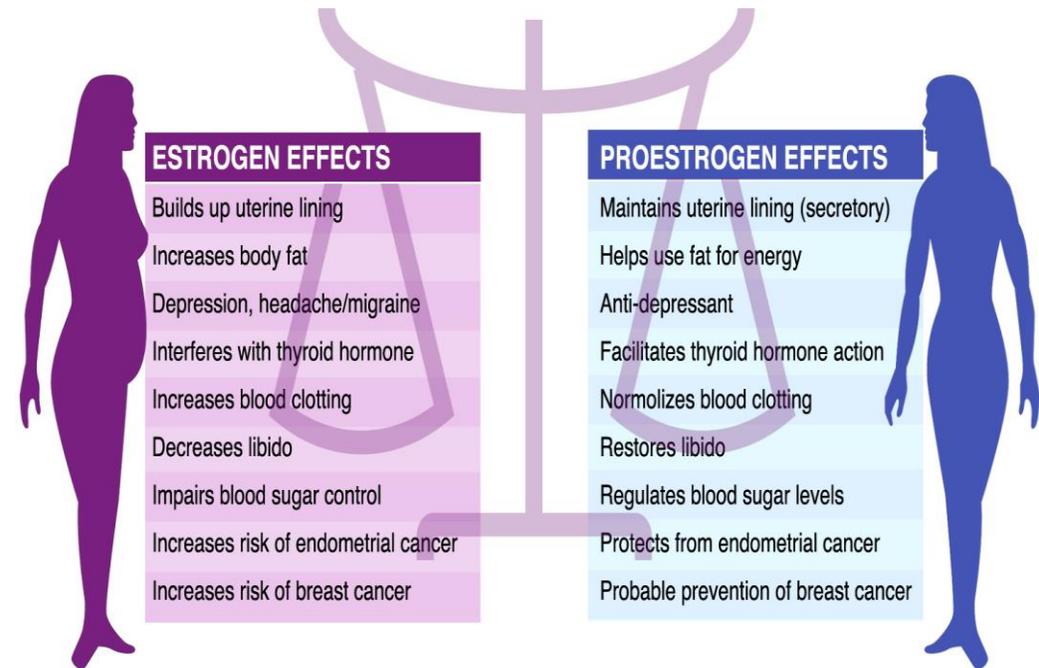
Estrogens, a group of female sex hormones, are known human carcinogens.

Although these hormones have essential physiological roles in both females and males, they have also been associated with an increased risk of certain cancers.

For instance, taking combined menopausal hormone therapy (estrogen plus progestin, which is a synthetic version of the female hormone progesterone) can increase a woman's risk of breast cancer.

Menopausal hormone therapy with estrogen alone increases the risk of endometrial cancer and is used only in women who have had a hysterectomy.

## THE ROLES AND FUNCTIONS OF ESTROGEN & PROESTROGEN



# Immunosuppression

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Many people who receive organ transplants take medications to suppress the immune system so the body won't reject the organ.

These "immunosuppressive" drugs make the immune system less able to detect and destroy cancer cells or fight off infections that cause cancer.

Infection with HIV also weakens the immune system and increases the risk of certain cancers.

Research has shown that transplant recipients are at increased risk of a large number of different cancers.

Some of these cancers can be caused by [infectious agents](#), whereas others are not.

The four most common cancers among transplant recipients and that occur more commonly in these individuals than in the general population are non-Hodgkin lymphoma (NHL) and cancers of the lung, kidney, and liver.

## **Suppression of cellular functions in the clinical practice → Immunosuppression**

### Groups of immunosuppressive drugs:

- *Corticosteroids*
- Cytostatic drugs  
(alkylating agents, folic acid antagonists, purine/pyrimidien inhibitors)
- Non-cytostatic immunosuppressive agents  
(Cyclosporine A, Tacrolimus and Rapamycin)
- Cytokine and Cytokine receptor antibodies
- Leukopheresis; the removal of white blood cells
- Intravenous immunoglobulins (IVIg)

# Infectious Agents

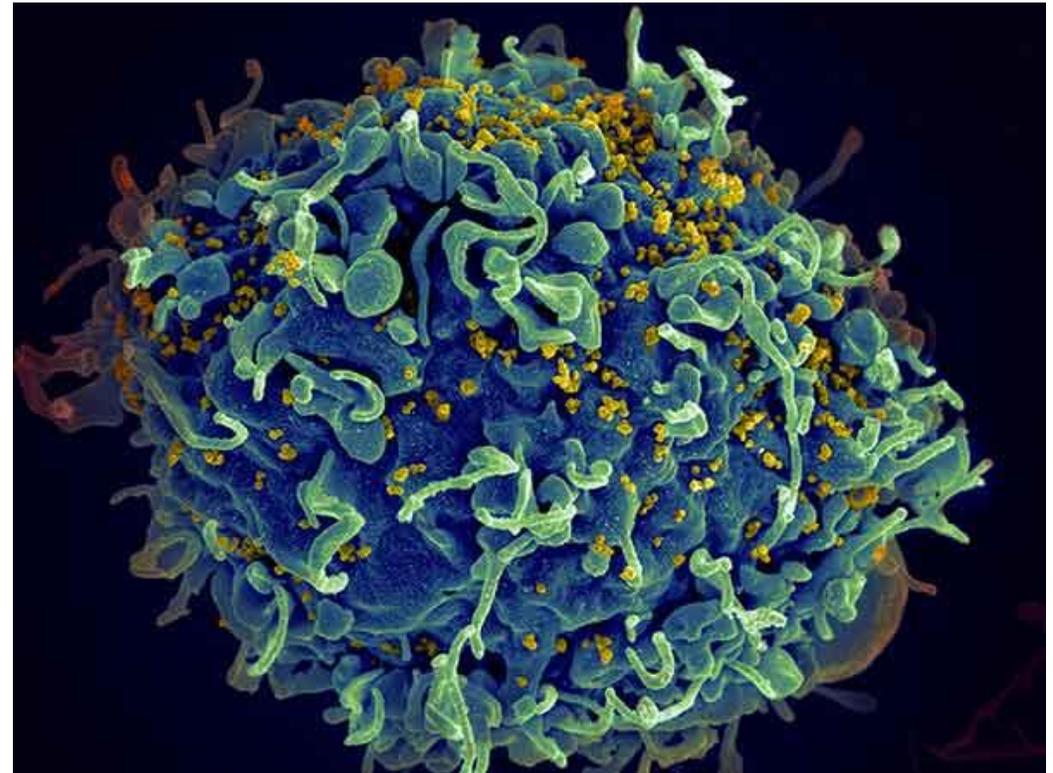
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Certain infectious agents, including [viruses](#), [bacteria](#), and [parasites](#), can cause cancer or increase the risk that cancer will form.

Some viruses can disrupt signaling that normally keeps cell growth and proliferation in check.

Also, some infections weaken the immune system, making the body less able to fight off other cancer-causing infections.

And some viruses, bacteria, and parasites also cause [chronic inflammation](#), which may lead to cancer.

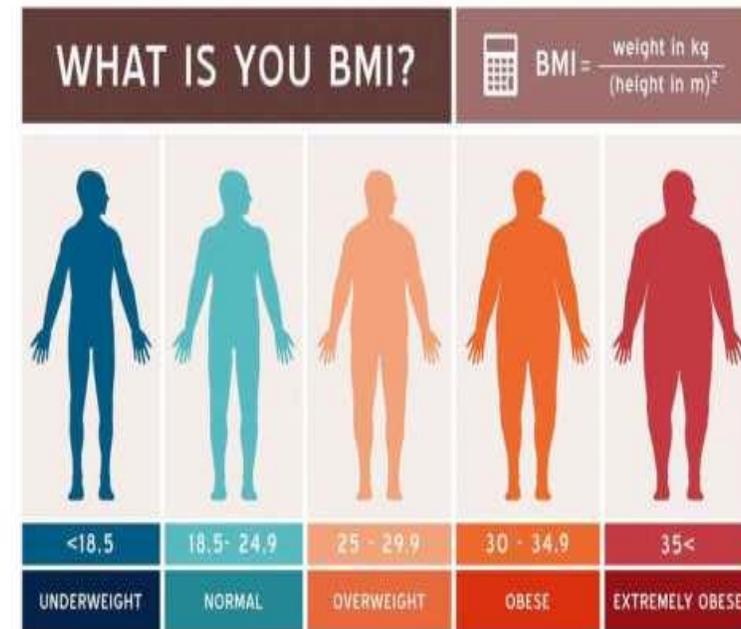


# Obesity

People who are obese may have an increased risk of several types of cancer, including cancers of the breast (in women who have been through menopause), colon, rectum, endometrium (lining of the uterus), esophagus, kidney, pancreas, and gallbladder.

Conversely, eating a healthy diet, being physically active, and keeping a healthy weight may help reduce risk of some cancers.

- These healthy behaviors are also important to lessen the risk of other illnesses, such as heart disease, type II diabetes, and high blood pressure.

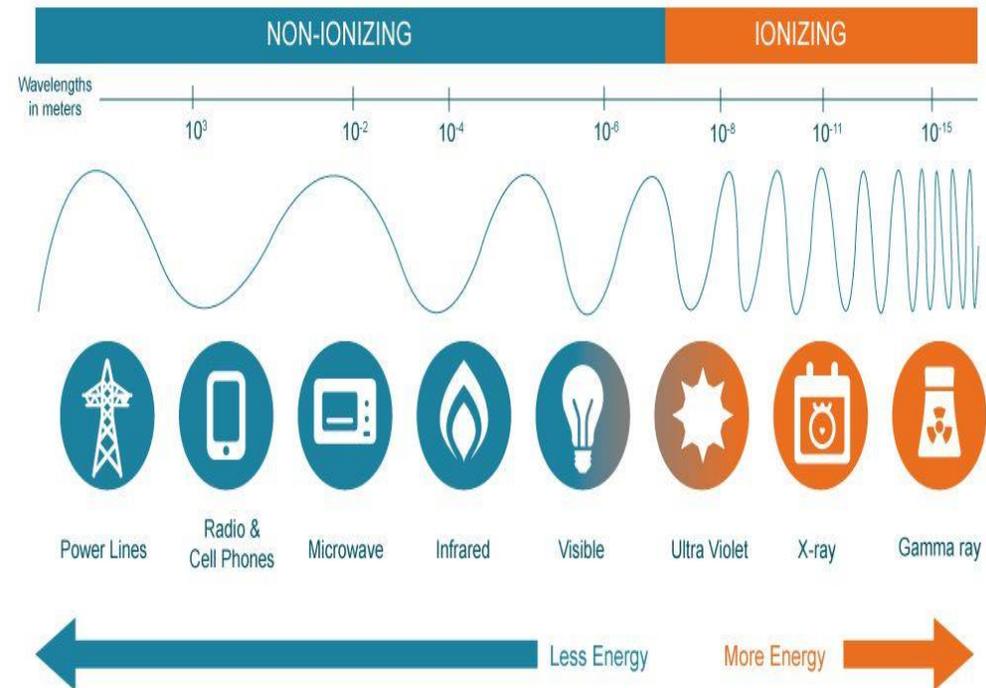


# Radiation

Radiation of certain wavelengths, called [ionizing radiation](#), has enough energy to damage DNA and cause cancer.

Ionizing radiation includes radon, x-rays, gamma rays, and other forms of high-energy radiation.

Lower-energy, non-ionizing forms of radiation, such as visible light and the energy from [cell phones](#), have not been found to cause cancer in people.



# Sunlight

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# Known or Suspected Risk Factors for Cancer

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[Sunlight](#)

[Tobacco](#)

# Causative Agents of Cancer

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Anything that may cause a normal body cell to develop abnormally may cause cancer. There are several general categories of cancer-related or causative agents:

- Chemical or toxic compound exposures
- Ionizing radiation
- Some pathogens
- Human genetics