# What Is Cancer And What Is Being Done To Treat It?

**C**lose your eyes and think of someone you know that has been affected by cancer. Chances are that you were able to identify at least one person in your life that has suffered from this disease. About one-third of people in the United States will develop cancer during their lifetime.

For thousands of years our world has been plagued with this once termed ‘non-treatable’ illness. While cancer is the second leading cause of death, as years pass discovery of cures and treatments progress further and further.

**What Exactly is Cancer?**

Cancer is one single name that refers to over one hundred diseases and is developed when cells in the body grow out of control. It begins with an error in DNA replication, that results in the rapid and uncontrollable growth of cells. This intense growth has negative effects on the body that can ultimately result in death. When these cancerous cells grow so large, the body is not able to stop them which leads to them spreading throughout the body using the blood as its transportation.

While there are many things that can cause the development of cancer, it can also be passed down through DNA. Often times, when DNA is damaged, the body repairs it. However, the body is not able to repair DNA damaged by this disease, resulting in heredity cancer. Many do not realize that only 5-10% of cancers contain a genetic link to the parents. The reason this fact is so misconstrued is because families are likely to have the same habits and are exposed to the same pollutants that may cause the cancer to develop.

**Is Cancer Always a Tumor?**

Generally, cancer is formed into a tumor, but not always. A few cancers that affect the blood, such as Leukemia, do not form these solid growths. All cancer cells are different just as all tumors are different. Some tumors are not cancerous and have been given the term ‘benign’, while ‘malignant’ tumors have the ability to grow and spread throughout the body. Cancer has the ability to form in any part of your body. This is so because all cells throughout the body are constantly dividing and forming new cells. Because the heart only replicates when it is damaged, cardiac cancer is almost unheard of, but is still a rare possibility nonetheless.

**How Will I Know if I Have Cancer?**

 The only way to know if you have cancer is to get tested. Many people downplay their symptoms to convince themselves that they do not need to go to the doctor when, in reality, the only thing they need is to go to the doctor! Most cancer carriers have no idea they have it until it reaches a later stage. This puts them at a great disadvantage due to the difficulty of removing the cancer after it has spread to so many different areas of the body. Most cancers do cause symptoms. However, ovarian cancer, lung cancer, and colon cancer do not produce symptoms in those affected until it spreads throughout the body. This is why it is crucial to be screened early in life.

**What Causes Cancer?**

 Unfortunately, the answer to what causes this disease is a long list. There is no single cause. However, lifestyle factors are the most common cause for the development of cancer. Smoking or using tobacco products is probably the most well-known cause as well as radiation from technology and overexposure to ultraviolet rays from the sun. A diet that is high in fat is another common trigger for the formation of cancer. Genetically modified foods, canned goods, and eats such as microwaved popcorn, grilled red meat, and refined sugar are all products that doctors suggest staying away from to lessen your chances of developing cancer.

**How Can This Disease be Cured?**

The current answer is that cancer cannot be cured, but it can be treated. If the cancer is identified at an early stage, the chances of getting rid of the diseased growth and living longer increase. This is so because the cancer is easier to treat or get rid of during the beginning stages.

Ancient surgeons discovered that after the removal of a cancerous tumor, the chances of it coming back were high. However, during the 20th century surgeons developed chemotherapy, radiation therapy, and hormone therapy to help with this problem.

 Chemotherapy uses drugs to kills cancerous cells while radiation therapy uses high-powered energy beams to do so. On the other hand, hormone therapy is the removal of the hormones in the body that may be causing the cancer cells to grow. Any of the three can be used after surgery to help prevent return of the cancerous tumors. The treatments continue to develop and advance as more studies are done.

**Three Types of Treatment**

If a cure for the particular cancer is not possible, these treatments are used to shrink the cancerous tumor or slow the growth of the cancer to reduce the negative symptoms for as long as possible.

**Primary treatment**

The goal of primary treatment is to remove the cancer from the body. This is most commonly done with surgery. However, if the body is sensitive to chemotherapy or radiation therapy, then those methods may be used as the primary treatment.

**Adjuvant treatment**

The goal of adjuvant treatment is to exterminate any cancer cells that are still in the body after the primary treatment. The most common adjuvant therapies are chemotherapy, radiation therapy, and hormone therapy.

**Palliative treatment**

The goal of adjuvant treatment is to relieve the negative symptoms caused by the cancer. Surgery, chemotherapy, radiation, and hormone therapy along with other medications can all be used to alleviate symptoms.

**What is The Most Recent Advancement Made in Cancer Studies?**

In February of 2019, scientists at The University of Kansas discovered a way to detect cancer through just one drop of blood. Chemistry Professor Yong Zeng, along with his team, developed a device called a ‘3D nanopatterned microfluidic chip’. This small chip has the ability to detect the cancer markers in one single drop of blood or plasma.

Not only is this invention simple to recreate, but it is also very low cost which increases the chances of it being used in many clinical settings. Something else that is considered beneficial about this new chip is that it is noninvasive. Traditional tumor biopsies usually involve a needle or camera entering the body and sometimes a piece of the tumor being taken out to be tested. With this nanopatterned chip, Zeng and his colleagues developed a way to test for cancer with the tiniest drop of plasma. The design has been used on samples from ovarian cancer patients and will soon be tested on many different types.

This is a groundbreaking discovery since the earlier the detection of cancer, the easier it is to remove. With this new technology, doctors will be able to identify cancer much faster than ever before.

**References**

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