

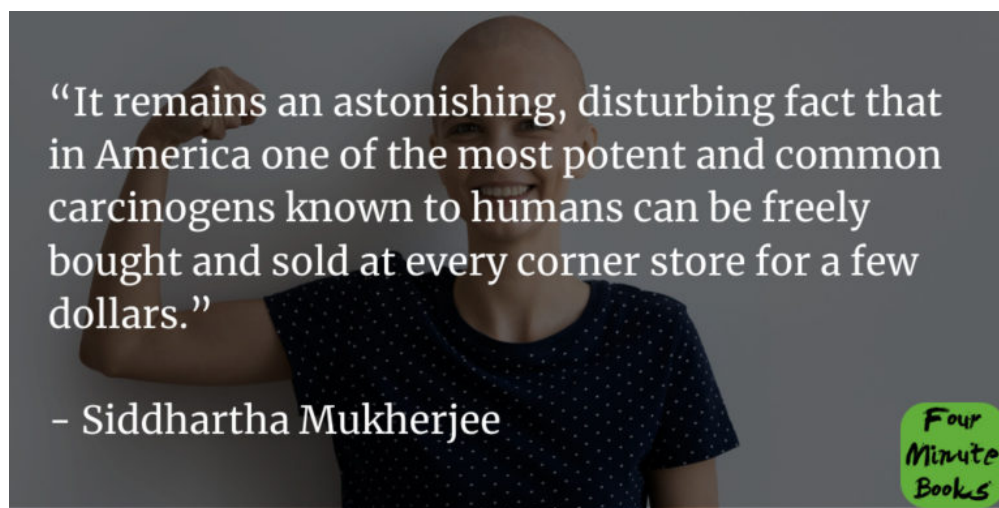
The Emperor Of All Maladies Summary

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1-Sentence-Summary: *The Emperor Of All Maladies* details the beginnings and progress in our understanding of cancer, including how we first started learning about it, began developing ways to treat it and discovered ways to prevent it, and the biological effect that it has on us.

Read in: 4 minutes

Favorite quote from the author:



Virtually every one of us on earth is touched by cancer in some way. About 40 percent of us will be diagnosed with cancer at some point in our lives. With statistics like that, it's no wonder why we all know someone who's had it.

But though we encounter it often, very few of us actually understand much about it. It's not like it's a mystery— science has come leaps and bounds in the last century to explain exactly what causes it and how we can treat it.

In *The Emperor Of All Maladies: A Biography of Cancer*, doctor, and researcher Siddhartha Mukherjee brings us an in-depth look into cancer's past, present, and future. We learn the fascinating, easy-to-digest science of what happens to cause the disease and what we can do to prevent and treat it.

Here's the book summarized in just 3 lessons:

1. We've come a long way in understanding cancer.
2. Infections, chemicals, hormones, radiation, and heredity all affect your risk of getting cancer.
3. Surgery, chemotherapy, and radiation are the ways that we currently treat cancer.

Cancer sucks. But this book can make it suck less by informing you about it! Let's go!

Lesson 1: Our understanding of cancer has exploded in the last few centuries.

Around 160 CE, Greco-Roman physician Galen developed the first known theory about cancer. He believed that tumors resulted from entrapment of black bile—this theory held until the sixteenth century when people started to perform autopsies.

Physicians were surprised to discover that there was no black bile to be found in cancer patients. So they instead turned to external, invisible sources. Until 1850 it was believed that poisonous vapors known as miasmas and worms caused tumors.

Once pathologist Rudolf Virchow looked at cancer under a microscope, he made a significant discovery. Cancer is actually made up of our own body's cells.

But if they are made of our own cells, how can they be so deadly? **Cancer cells are different from regular cells because they don't die, and they don't stop replicating.** Normal cells divide when they get growth signals from their environment, and they stop when they receive signals from growth inhibitors.

Cancer cells, on the other hand, have mutated growth genes. This means that they both replicate without any signal and won't stop replicating even if there are growth inhibitors. This is one reason why cancer is so hard to treat.

Another reason it is so dangerous is that, unlike a normal cell that ages and self-destructs, cancer cells never die. This immortality, combined with cancer's unlimited replication, makes it very lethal.

Lesson 2: Your risk for cancer depends on infections, chemicals, hormones, heredity, and radiation.

We know that cancer happens in our own cells, but we also know that external sources can cause it. The first discovery of this was from scientist Percival Pott, who investigated a cluster of scrotal cancer among young boys. After looking at the data, he found they were all chimney sweeps, leading him to hypothesize that the soot accumulating on their scrotum was causing cancer.

It took the scientific community time to accept this idea, but the data eventually backed him up. Since then, we have found countless other substances to be cancer-inducing, such as asbestos and heavy metals.

How do these substances cause cancer? There are two steps. First, substances called mutagens can alter your genes to cause problems in cell growth, self-repair, or self-destruction, making a normal cell transform into a cancer cell.

The second step in the development of cancer is an immune system disruption that causes your body to no longer destroy a potentially malignant cell. Certain toxins can disrupt your immune system in this way. When a malignant cell isn't destroyed, it can multiply unchecked, resulting in cancer.

Infection also increases our cancer risk. Some viruses induce chronic inflammation, which increases cancer risk dramatically by damaging cells in the infected tissue. Some viruses directly cause cancer by altering a cell's DNA, such as hepatitis-B, which can activate cancer-related genes.

Other things are known to cause cancer are radiation, hormones, and genes. Radiation causes cancer by damaging the DNA, which leads to mutations that become cancerous. Certain hormones can increase your cancer risk by working as growth signals for both normal and cancerous cells. Lastly, your genes play a factor in your susceptibility to cancer. This is why certain cancers can run in families.

Lesson 3: We currently treat cancer with surgery, chemotherapy, and even radiation sometimes.

Surgery can be a good option for treating cancer, but it has its limitations. For one, it isn't possible to surgically remove cancers of blood like leukemia, and removing tumors doesn't do much good if the cells have already spread to different parts of the body.

This is why doctors turn to chemotherapy. Chemotherapy works by damaging the portions of our DNA that are in charge of cell multiplication. It cuts off the growth of cells in an area, which especially affects cancer cells because they multiply the fastest, and they can't repair DNA damage. **So, chemotherapy effectively attacks all the cells, but normal cells regenerate, and cancerous cells die.**

Other chemotherapy types affect the metabolism of cancer cells. They work by mimicking substances vital for cell division, but they don't actually do that. Cancer cells "hire" these imposter substances to help replicate the DNA, but they don't do the job, which halts cell division and stops cancer from growing.

Another tool used to fight cancer is radiation, the very thing that can also cause it. It helps for the same reason it causes cancer— it damages DNA. Radiation treatment involved using controlled, intense rays to kill cancer cells in a limited area. They are painless but cause sickness.

Radiation treatment has been shown to decrease the chance of a relapse greatly. It also helps when tumors are hard to get to, such as in the brain, where operation can cause life-threatening complications. In the end, it is often a combination of these treatments that does the most good for a patient with cancer.

The Emperor Of All Maladies Review

My Dad had it. Every one of my grandparents did too. But luckily, I haven't had cancer so far in my life. This sickness is crazy, awful, and fascinating all at the same time, just like everything I learned in *The Emperor Of All Maladies*. I think this is a must-read for everybody in this age where almost everyone is or will be affected by cancer at some point.

Who would I recommend The Emperor Of All Maladies summary to?

The 19-year-old that had a family member diagnosed with cancer recently, the 48-year-old who wonders how they can decrease their risk of terminal illness, and anyone who wants to learn the basics of cancer's causes, treatments, and history.