

Curious about how cancer forms ^[1]

Dear Alice,

How is cancer formed?

Answer

Dear Reader,

Cancer is a complex medical issue, so kudos to you for seeking out more information. For a quick answer to your question — cancer of any type forms due to cells growing uncontrollably and rapidly in the body. While this may not sound harmful, the rapid cell growth includes cells that have undergone genetic mutations (i.e., harmful changes to cellular DNA). The faster and more frequently the cells proliferate, the more the genetically mutated cells have a chance to spread throughout the body. But, the good news is that there are treatment methods for many of those who've been diagnosed with cancer (though which treatment is most appropriate will depend on the type of cancer) and more are being researched. It's also key to point out that there are also a number of prevention strategies to reduce a person's risk of developing certain cancers. Have more cancer queries? Read on.

First, you might be wondering what happens as the cells multiply in the body. Eventually, these cells can form tumors (though not with all cancers, as is the case with leukemia, a cancer of the body's blood-producing tissues). More invasive cancers consist of tumors that spread quicker and further throughout the body. But, not all tumors are associated with cancer. Some tumors are malignant (or cancerous) and some may be benign (or non-cancerous) so they don't carry genetic mutations throughout the body. Additionally, it might be helpful to note that cancer doesn't typically grow overnight; rather, it could take months or even years for mutated cells to form tumors or proliferate to a degree that results in symptoms and is detectable by tests.

Furthermore, the process of cell division and multiplication can be heightened by carcinogens and may result in more cell mutations. Carcinogens are cancer-causing agents with which a person may come in contact, that include:

- Environmental exposures, such as ultraviolet (UV) radiation, certain medical treatments, and air pollution

- Lifestyle behaviors, such as tobacco or alcohol use and eating red meat

Some carcinogens (e.g., tobacco) are more likely to cause cancer as opposed to others (e.g., eating red meat). On that note, mere exposure to a carcinogen doesn't guarantee that a person will develop cancer. Instead, the likelihood of an individual developing cancer depends on a variety of factors, including the intensity and duration of the exposure and that individual's own genetic factors (i.e., an inherited predisposition for cancer).

What happens if a person is diagnosed with cancer? Rest assured that there's been a rise in the number of effective treatment methods available and researchers are hard at work testing and developing newer ones. Some treatment methods, which either remove cancer cells or shrink the tumors, include surgery, chemotherapy, and radiation therapy. These treatment options may also be combined with one another. What's more, some folks consider using complementary and alternative treatments [2], which may help alleviate certain side effects from treatments or provide some stress relief. Ultimately though, the most appropriate and effective treatment option(s) for an individual are highly dependent on a number of factors, including the type and stage of cancer, and are best determined with the assistance of a health care provider. Therefore, individuals living with cancer are often directed to speak with an oncologist (a medical professional who specializes in cancer) when exploring treatment options.

Lastly, you might also be wondering how to reduce the risk of getting cancer in the first place. There are prevention methods individuals can choose from to decrease their risk of certain types of cancer. These methods often center on eliminating or significantly reducing exposure to carcinogens. Some to consider include:

- Avoiding or quitting tobacco use
- Protecting your skin by wearing minimum SPF 15 sunscreen and minimizing exposure to the sun's UV rays
- Drinking alcohol in moderation or not at all
- Eating fresh fruits, vegetables, and whole grains
- Limiting the intake of red meat and processed foods

Hopefully, this response fed your growing curiosity on how cancer is formed! There's a lot more to know, especially about specific types of cancer and their respective treatment and prevention methods. To learn even more, consider checking out some related Q&As in the Cancer [3] category of the *Go Ask Alice!* General Health [4] archives and the National Institute of Health's (NIH) National Cancer Institute [5].

Alice!

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[1] <https://goaskalice.columbia.edu/answered-questions/curious-about-how-cancer-forms>

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