

## Understanding Cancer Risk [1]

This section has been reviewed and approved by the [Cancer.Net Editorial Board](#) [2], 02/2013

### Key Messages:

- Risk describes the chance that a person will develop cancer or have a recurrence (cancer that comes back after treatment).
- Understanding your risk factors can help you and your doctor make decisions about your health, such as being screened for cancer.
- Absolute risk and relative risk are statistics that help doctors understand your likelihood of developing cancer compared with the general population.

In general terms, risk is the probability that an event will happen. When talking about cancer, risk is most often used to describe the chance that a person will develop cancer or have a recurrence. Knowing this information not only helps you make more informed decisions about your health, but it also helps researchers and oncologists (doctors who treat people with cancer) improve the health of large numbers of people. For example, discovering that people who smoke have a higher risk of lung cancer than people who don't smoke jumpstarted a worldwide campaign to encourage people to quit smoking or not to start smoking.

### Risk factors

A risk factor is anything that increases a person's likelihood of developing cancer. Although risk factors, such as smoking or a family history of cancer, often influence the development of cancer, most do not directly cause cancer. Some people with several risk factors never develop cancer, while others with no known risk factors do. However, knowing your risk factors, discussing them with your health care team, and having a detailed family history taken by your doctor may help you make more informed lifestyle and health care choices. For instance, this information could help your doctor decide whether you should be referred for genetic testing and/or counseling (see below).

General risk factors for cancer include older age, a personal and/or family history of cancer, using [tobacco](#) [3], some types of viral infections (such as [human papillomavirus](#) or HPV [4]), specific chemicals (such as benzene), and exposure to radiation (including ultraviolet radiation from sunlight). Although risk factors like using tobacco, being overweight, and getting multiple sunburns can be avoided, other risk factors cannot be controlled, such as getting older. Learn

about the risk factors for specific types of cancer [5].

Understanding your risk for cancer is important because it can help your doctor decide whether you could benefit from:

- Receiving a cancer screening test, such as a mammogram [6] or colonoscopy [7]
- Receiving a screening test at an earlier age and/or more often than the general population
- Having another intervention, such as surgery or medication, to lower your cancer risk

For example, a woman whose mother or sister had breast cancer is twice as likely to develop breast cancer as a similar woman who does not have the same family history. Some women with especially strong family histories of breast cancer may consider a prophylactic mastectomy (preventive removal of the breasts). This appears to reduce the risk of developing breast cancer by at least 95%. Or a woman may wish to take a medication [8] to lower her risk of breast cancer.

People with a known genetic syndrome [9] in the family may consider genetic testing [10]. Your doctor or genetic counselor [11] can help you learn more about specific genetic tests and analyze your risk of developing cancer.

### **Understanding the difference between absolute and relative risk**

**Absolute risk** is the chance that a person will develop a disease during a given period of time. This statistic is helpful for determining how many people are at risk for a disease. You may often see this expressed as a percentage. For example, the statement one out of eight women (12.5%) will develop breast cancer in her lifetime describes the absolute risk for the general population of women. However, this number only relates to the general population and cannot be used to identify the risk for any one person or group. For example, women older than 70 have a higher absolute risk of breast cancer than younger women because breast cancer risk increases with age.

**Relative risk** compares the risk between a group of people who have a particular risk factor and those who don't. One way to think about relative risk is to imagine you are comparing two similar groups of 100 people. Both groups will include people who are the same age, gender, etc, but only one of the groups will include people who have a particular risk factor, such as tobacco use. During a specific period of time, researchers keep track of how many people from each group develop cancer. If two people in the risk factor group and one person in the other group develops cancer, those in the first group have two times or twice the risk of the second group. This is a 100% increase in relative risk. The absolute risk, however, would be 2% or 2 out of 100 people.

Both relative risk and absolute risk help doctors understand whether an individual's risk is higher or lower than the general population. These measurements also provide important information when making decisions about lifestyle changes or [cancer screening](#) [12]. Knowing that a risk factor increases a person's relative risk of developing cancer by 100% might sound high. But looking at the absolute risk (one person in 100 compared to two people in 100) provides a more complete picture. When applying studies you hear in the news to your own situation, it is important to find out the absolute risk; most studies report relative risks, which can make something sound more important (or scary) than it actually is.

### **Questions to ask the doctor about risk**

The statistical language doctors use may be difficult to understand at first, and it can be helpful to ask a member of your health care team to explain what this information means in the context of your everyday life. This could mean asking your doctor what lifestyle changes you could make to lower your risk of developing certain cancers and if these recommendations should be personalized for your particular situation. You may want to know how losing weight, starting a new exercise plan, or being screened for early diabetes might benefit you even if you don't have a strong family history of cancer.

To help find out your risk of developing cancer, consider asking your doctor the following questions:

- What risk factors do I have, and how do they affect my risk of cancer?
- What is my chance of developing cancer in the next five years? In my lifetime?
- What can I do to lower my risk of cancer?
- If I change my behavior to eliminate a risk factor (for example, quit smoking or lose weight), what are my chances of developing cancer in the next five years? In my lifetime?
- If I identify a new risk factor (for example, if a close relative develops cancer), how much does the risk increase?
- What cancer screening tests do you recommend, and how often should I have them?

### **More Information**

[Understanding Statistics Used to Estimate Risk and Recommend Screening](#) [13]

[Risk Factors and Prevention](#) [14]

Podcast: [Cancer Screening and Prevention](#) [15]

[Medical News: How to Know If It's Accurate](#) [16]

### **Additional Resource**

[National Cancer Institute: Cancer Causes and Risk Factors](#) [17]

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#### **Links:**

[1] <http://www.cancer.net/navigating-cancer-care/prevention-and-healthy-living/understanding-cancer-risk>

- [2] <http://www.cancer.net/about-us>
- [3] <http://www.cancer.net/node/25002>
- [4] <http://www.cancer.net/node/24561>
- [5] <http://www.cancer.net/cancer>
- [6] <http://www.cancer.net/node/24584>
- [7] <http://www.cancer.net/node/24481>
- [8] <http://www.cancer.net/node/25650>
- [9] <http://www.cancer.net/node/24905>
- [10] <http://www.cancer.net/node/24895>
- [11] <http://www.cancer.net/node/24907>
- [12] <http://www.cancer.net/node/24972>
- [13] <http://www.cancer.net/node/24960>
- [14] <http://www.cancer.net/node/24868>
- [15] [http://www.cancer.net/multimedia/podcasts?field\\_podcast\\_category\\_tid=18](http://www.cancer.net/multimedia/podcasts?field_podcast_category_tid=18)
- [16] <http://www.cancer.net/node/24593>
- [17] <http://www.cancer.gov/cancertopics/causes>