

Lung Cancer

The National Cancer Institute (<http://www.cancer.gov/>), lists lung cancer as one of 13 common causes of cancer and provides the following information.

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Understanding Cancer

Cancer begins in cells, the building blocks that make up *tissues*. Tissues make up the organs of the body. Normally, cells grow and divide to form new cells as the body needs them. When cells grow old, they die, and new cells take their place.

Sometimes this orderly process goes wrong. New cells form when the body does not need them, and old cells do not die when they should. These extra cells can form a mass of tissue called a growth or *tumor*.

Not all tumors are cancer. Tumors can be *benign* or *malignant*.

Benign tumors are not cancer:

- Benign tumors are rarely life-threatening.
- Usually, benign tumors can be removed, and they seldom grow back.
- Cells from benign tumors do not spread to tissues around them or to other parts of the body.

Malignant tumors are cancer:

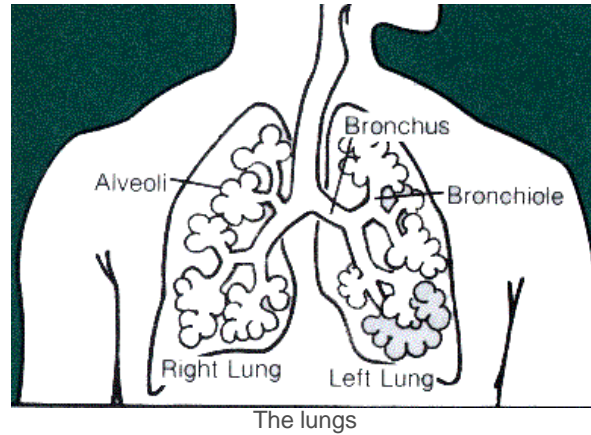
- Malignant tumors generally are more serious than benign tumors. They may be life-threatening.
- Malignant tumors often can be removed, but they can grow back.
- Cells from malignant tumors can invade and damage nearby tissues and organs. Also, cancer cells can break away from a malignant tumor and enter the bloodstream or lymphatic system. That is how cancer cells spread from the original cancer (*primary tumor*) to form new tumors in other organs. The spread of cancer is called *metastasis*.

Lung Cancer

The diagnosis of lung cancer brings with it many questions and a need for clear, understandable answers. We hope this National Cancer Institute (NCI) booklet (NIH Publication No. 99-1553) will help. It provides information about some causes and ways to prevent lung cancer, and it describes the symptoms, detection, diagnosis, and treatment of this disease. Having this important information can make it easier for patients and their families to handle the challenges they face.

The Lungs

The lungs, a pair of sponge-like, cone-shaped organs, are part of the *respiratory system*. The right lung has three sections, called *lobes*; it is a little larger than the left lung, which has two lobes. When we breathe in, the lungs take in oxygen, which our cells need to live and carry out their normal functions. When we breathe out, the lungs get rid of carbon dioxide, which is a waste product of the body's cells.



Understanding Lung Cancer

Cancers that begin in the lungs are divided into two major types, *non-small cell lung cancer* and *small cell lung cancer*, depending on how the cells look under a microscope. Each type of lung cancer grows and spreads in different ways and is treated differently.

Non-small cell lung cancer is more common than small cell lung cancer, and it generally grows and spreads more slowly. There are three main types of non-small cell lung cancer. They are named for the type of cells in which the cancer develops: *squamous cell carcinoma* (also called *epidermoid carcinoma*), *adenocarcinoma*, and *large cell carcinoma*.

Small cell lung cancer, sometimes called *oat cell cancer*, is less common than non-small cell lung cancer. This type of lung cancer grows more quickly and is more likely to spread to other organs in the body.

Lung Cancer: Who's at Risk?

Researchers have discovered several causes of lung cancer -- most are related to the use of tobacco.

- **Cigarettes.** Smoking cigarettes causes lung cancer. Harmful substances, called *carcinogens*, in tobacco damage the cells in the lungs. Over time, the damaged cells may become cancerous. The likelihood that a smoker will develop lung cancer is affected by the age at which smoking began, how long the person has smoked, the number of cigarettes smoked per day, and how deeply the smoker inhales. Stopping smoking greatly reduces a person's risk for developing lung cancer.
- **Cigars and Pipes.** Cigar and pipe smokers have a higher risk of lung cancer than nonsmokers. The number of years a person smokes, the number of pipes or cigars smoked per day, and how deeply the person inhales all affect the risk of developing lung cancer. Even cigar and pipe smokers who do not inhale are at increased risk for lung, mouth, and other types of cancer.
- **Environmental Tobacco Smoke.** The chance of developing lung cancer is increased by exposure to environmental tobacco smoke (ETS) -- the smoke in the air when someone else smokes. Exposure to ETS, or secondhand smoke, is called involuntary or passive smoking.
- **Radon.** Radon is an invisible, odorless, and tasteless radioactive gas that occurs naturally in soil and rocks. It can cause damage to the lungs that may lead to lung cancer. People who work in mines may be exposed to radon and, in some parts of the country, radon is found in houses. Smoking increases the risk of lung cancer even more for those already at risk because of exposure to radon. A kit available at most hardware stores allows homeowners to measure radon levels in their homes. The home radon test is relatively easy to use and inexpensive. Once a radon problem is corrected, the hazard is gone for good.
- **Asbestos.** Asbestos is the name of a group of minerals that occur naturally as fibers and are used in certain industries. Asbestos fibers tend to break easily into particles that can float in the air and stick to clothes. When the particles are inhaled, they can lodge in the lungs, damaging cells and increasing the risk for lung cancer. Studies have shown that workers who have been exposed to large amounts

of asbestos have a risk of developing lung cancer that is 3 to 4 times greater than that for workers who have not been exposed to asbestos. This exposure has been observed in such industries as shipbuilding, asbestos mining and manufacturing, insulation work, and brake repair. The risk of lung cancer is even higher among asbestos workers who also smoke. Asbestos workers should use the protective equipment provided by their employers and follow recommended work practices and safety procedures.

- **Pollution.** Researchers have found a link between lung cancer and exposure to certain air pollutants, such as by-products of the combustion of diesel and other fossil fuels. However, this relationship has not been clearly defined, and more research is being done.
- **Lung Diseases.** Certain lung diseases, such as tuberculosis (TB), increase a person's chance of developing lung cancer. Lung cancer tends to develop in areas of the lung that are scarred from TB.
- **Personal History.** A person who has had lung cancer once is more likely to develop a second lung cancer compared with a person who has never had lung cancer. Quitting smoking after lung cancer is diagnosed may prevent the development of a second lung cancer.

Researchers continue to study the causes of lung cancer and to search for ways to prevent it. We already know that the best way to prevent lung cancer is to quit (or never start) smoking. The sooner a person quits smoking the better. Even if you have been smoking for many years, it's never too late to benefit from quitting.

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