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Asbestos and Cancer Risk

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What is asbestos?

Asbestos is a group of minerals that occur naturally as bundles of tiny fibers. These fibers are in soil and rocks in many parts of the world. They are made mainly of silicon and oxygen, but they also contain other elements.

Asbestos fibers are strong, resistant to heat and to many chemicals, and do not conduct electricity. As a result, asbestos has been used as an insulating material in factories, schools, homes, and ships, as well as in making automobile brake and clutch parts, roofing shingles, ceiling and floor tiles, cement, textiles, and hundreds of other products.

There are different types of asbestos fibers (including chrysotile, crocidolite, amosite,

containing products, or installing asbestos insulation. It can also occur when older buildings are demolished or renovated, or when older asbestos-containing materials begin to break down. In any of these situations, asbestos fibers can float in the air and be inhaled. Some of these fibers can reach the ends of the small airways in the lungs or penetrate the outer lining of the lung and chest wall (known as the **pleura**).

- **Swallowing asbestos:** Asbestos fibers can also be swallowed. This can happen when people eat or drink contaminated food or liquids (such as water that flows through asbestos cement pipes). It can also occur when people cough up asbestos they have inhaled, and then swallow their saliva.

Many people are exposed to very low levels of naturally occurring asbestos in outdoor air, which comes from rocks that have broken down over time. The risk of this is higher

(including an increased risk of some cancers), measures have been taken to reduce people's exposure, including establishing standards and laws that limit or ban the use of asbestos in construction materials. This has led to a dramatic decrease in the use of (and exposure to) asbestos in the United States since the mid-1970s. However, it's still used in some products, and it's still possible to be exposed to asbestos in older buildings, water pipes, and other settings. Asbestos use has been banned in the European Union since 2005, although the ban did not require removal of asbestos that was already in place.

Although asbestos use has declined in the United States, people can still be exposed, especially in some types of workplaces. For example, Americans working in construction can still face significant asbestos exposure on the job.

The mining and use of asbestos is also still a health hazard in some other parts of the world.

What about asbestos in talc products?

The main ingredient in talcum powder (and some other cosmetic products) is talc, a mineral that is mined from the earth. In its natural form, talc can sometimes contain asbestos. Since the mid-1970s, all talc used in cosmetic products in the United States is supposed to have been free from detectable levels of asbestos. However, concerns have been raised about a possible increased risk of ovarian cancer among women who have regularly applied talc-based powder in the genital area. For more on this topic, see [Talcum Powder and Cancer¹](#).

Does asbestos cause cancer?

Researchers use 2 main types of studies to try to figure out if a substance causes cancer.

- **Studies in people** (epidemiologic studies)
- **Lab studies** (studies done using lab animals or cells in lab dishes)

Evidence from studies in both people and lab animals has shown that asbestos can increase the risk for some types of cancer.

Studies in people

Lung cancer

Inhalation of asbestos fibers has been linked to an increased risk of [lung cancer](#)² in many studies of asbestos-exposed workers. This increased risk is seen with all forms of asbestos (there is no “safe” type of asbestos in terms of lung cancer risk). In general, the greater the exposure to asbestos, the higher the risk of lung cancer. Most cases of lung cancer in asbestos workers develop at least a decade after first exposure to asbestos.

For workers exposed to asbestos who also smoke, the lung cancer risk is even greater than adding the risks from these exposures separately.

Mesothelioma

[Mesothelioma](#)³ is a fairly rare form of cancer that most often affects the thin linings surrounding the organs in the chest (pleura) and abdomen (peritoneum).

Mesothelioma is closely linked with asbestos exposure. M28917bhphl S 0 eibersn linings

other cancers, including cancers of the pharynx (throat), stomach, colon, and rectum. However, the evidence for a link between these cancers and asbestos is not as strong as it is for the other cancers discussed here. It's not clear exactly how asbestos might affect risk for these cancers, but swallowed asbestos fibers might somehow contribute to the risk.

Studies done in the lab

Tests on several types of rodents, using different methods of exposure, have confirmed that asbestos causes cancer in animals. All forms of asbestos have caused tumors in animals, but the size and shape of the asbestos fibers influence the incidence of tumors. Smaller, straighter fibers seem more hazardous, perhaps because they are more likely to reach the deepest parts of the lungs.

What expert agencies say

Several national and international agencies study substances in the environment to determine if they can cause cancer. (A substance that causes cancer or helps cancer grow is called a **carcinogen**.) **The American Cancer Society looks to these organizations to evaluate the risks based on the available evidence.**

Based on animal and human evidence like the examples above, several expert agencies have evaluated the cancer-causing nature of asbestos.

The **International Agency for Research on Cancer (IARC)** is part of the World Health Organization (WHO). One of its goals is to identify causes of cancer. IARC classifies all forms of asbestos as "carcinogenic to humans," based on their ability to cause mesothelioma and cancers of the lung, larynx (voice box), and ovaries.

The US **National Toxicology Program (NTP)** is an interagency program of the National Institutes of Health (NIH), the Centers for Disease Control and Prevention (CDC), and the Food and Drug Administration (FDA). The NTP has classified asbestos as "known to be a human carcinogen."

The US **Environmental Protection Agency (EPA)** maintains the Integrated Risk Information System (IRIS), an electronic database on human health effects from exposure to various substances in the environment. The EPA classifies asbestos as a human carcinogen.

(For more information on the classification systems used by these agencies, see [Determining if Something Is a Carcinogen](#)⁷ and [Known and Probable Human](#)

[Carcinogens](#)⁸.)

Does asbestos cause any other health problems?

The major health problem caused by asbestos exposure, aside from cancer, is a lung disease called **asbestosis**. When a person breathes high levels of asbestos over time, some of the fibers can lodge deep in the lungs. Irritation caused by the fibers can eventually lead to scarring (fibrosis) in the lungs. This can make it hard to breathe. The main symptoms of asbestosis are shortness of breath and a chronic cough.

While some people may not have serious symptoms from asbestosis, others may be seriously disabled by breathing problems, which can get worse over time.

Asbestos can also reach the outer lining of the lungs (pleura), where it can cause **pleural plaques** (areas of hard, scar-like tissue in the pleura), **pleural thickening**, and **pleural effusions** (buildup of fluid between the lungs and the pleura). All of these conditions can make it harder to breathe.

How can I avoid or limit my exposure to asbestos?

If there is a chance you might be exposed to asbestos at work, such as during renovating old buildings, use the proper protective equipment, work practices, and safety procedures designed for working around asbestos. If you're concerned about asbestos exposure in your workplace, discuss the situation with your employee health and safety representative or your employer. If needed, the Occupational Safety & Health Administration (OSHA), the federal agency responsible for health and safety regulations in most workplaces, can provide more information or make an inspection.

If you live in an older home, it might contain asbestos-containing insulation or other materials. A knowledgeable expert can check your home to determine if there is any asbestos and if it poses any risk of exposure. This might include testing the air for asbestos levels. (Again, just because asbestos exists in a home does not necessarily mean that it needs to be removed. As long as the material is not damaged or disturbed, for example by drilling or remodeling, the fibers are not released into the air.) If asbestos needs to be removed from your home, hire a qualified contractor for job to avoid contaminating your home further or causing any exposure to your family or to the workers. You should not attempt to remove asbestos-containing material yourself.

What should I do and watch for if I've been exposed to asbestos?

If you've been exposed to asbestos, it's important to understand the extent of your exposure. If you were exposed only very briefly, or only at very low levels, your risk of a resulting disease is probably low. However, if you were exposed at high levels or for long periods of time, you may be at higher risk of certain cancers or the other diseases discussed above. You can monitor and help protect your health in several ways:

1. www.cancer.org/cancer/risk-prevention/chemicals/talcum-powder-and-cancer.html
2. www.cancer.org/cancer/types/lung-cancer.html
3. www.cancer.org/cancer/types/malignant-mesothelioma.html
www.cancer.org/cancer/understanding-cancer/anatomy-gallery/respiratory-system.html

prevention/risk/substances/asbestos/asbestos-fact-sheet on January 9, 2023.

US National Toxicology Program. *Report on Carcinogens, Fifteenth Edition: Asbestos*. 2021. Research Triangle Park, NC: US Department of Health and Human Services, Public Health Service. Accessed at <https://ntp.niehs.nih.gov/ntp/roc/content/profiles/asbestos.pdf> on January 9, 2023.

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