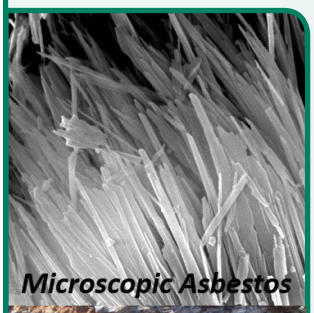
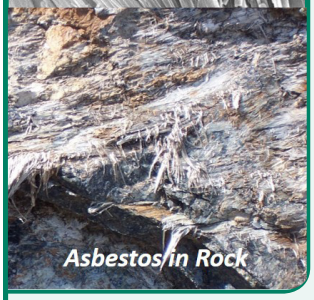
Asbestos and Health: Frequently Asked Questions

What is asbestos?

- Asbestos is a general name given to a group of six different minerals made up of fibers and occurring naturally in the environment.



Microscopic Asbestos



Asbestos in Rock

- Asbestos fibers are too small to be seen by the naked eye. They do not dissolve in water or evaporate. They resist heat and fire and cannot be broken down easily by chemicals or bacteria.
- In the United States, asbestos was used in many commercial products, mostly in the 20th century. Asbestos may still be used in products such as brake linings and roofing shingles.

What is naturally occurring asbestos?

All asbestos occurs naturally in certain types of rock. Large asbestos deposits are found in several places throughout the world. Asbestos was mined for many years to use in commercial materials. In some countries, asbestos is still mined, processed, and used in many different ways.

We often use the term **naturally occurring asbestos (or NOA)** for asbestos found in rocks and soil that is not mined to use in commercial products. NOA fibers may be released from rocks or soil into the air, either by routine human activities or natural erosion and weathering.

Is all asbestos the same?

The two general types of asbestos are chrysotile (fibrous serpentine) and amphibole.

- Chrysotile asbestos has long, flexible fibers. This type of asbestos is most commonly used in commercial products.
- Amphibole fibers are brittle and have a rod or needle shape. They were not as common as chrysotile asbestos in commercial products.

Exposure to either type of asbestos increases the chance of developing asbestos-related diseases, but amphibole fibers tend to stay in the lungs longer. Studies have shown that amphibole fibers are more likely than chrysotile asbestos to increase the risk of mesothelioma.

How can I be exposed to asbestos?

You can be exposed to asbestos by breathing in asbestos fibers. Disturbing rocks, soil, or products containing asbestos can release asbestos fibers into the air. If you breathe these fibers into your lungs, they could remain there for a lifetime. If the asbestos in rocks, soil, or commercial products is not disturbed, you are unlikely to breathe in fibers and be exposed.

Who is at risk for asbestos exposure?

Because asbestos has been used for many years, almost everyone has been exposed to it at some time. But people who worked with asbestos or spent a long time around it will have higher exposure.

What are common sources of high levels of asbestos outdoors?

- An asbestos mine or factory
- Demolition or renovation projects for buildings that contain asbestos products
- A waste site where asbestos is not properly covered up or stored
- An area where rock or soil with naturally-occurring asbestos has been crushed by human activities

What are common sources of high levels of asbestos indoors?

- Asbestos-containing materials (like insulation, ceiling tiles, or floor tiles) that are falling apart or that crumble easily
- Activities in the house, such as repairs and home improvements, that disturb materials containing asbestos
- Asbestos that comes into the home on shoes, clothes, hair, pet fur, or other objects
- Outdoor air with high asbestos levels that comes into a building through doors, windows, or air vents

Agency for Toxic Substances and Disease Registry
Division of Community Health Investigations

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Can exposure to asbestos cause health problems?

Being exposed to asbestos does not always mean you will develop health problems. Many factors can affect your risk for health problems from asbestos exposure. The most important of these are

- How long and how frequently you were exposed
- How long it has been since your exposure started
- How much you were exposed to
- Whether you smoke cigarettes (cigarette smoking combined with asbestos exposure increases your chances of getting lung cancer)
- What size and type of asbestos you were exposed to
- What other lung conditions you have (like asthma or COPD)

A doctor can help you determine whether you are at risk for health problems from asbestos exposure.

Are children at greater risk for asbestos-related diseases?

- Children have more time to develop asbestos-related diseases after exposure because they have more years of life ahead of them than adults.
- Medical experts do not know whether lung differences such as size or stage of development may cause a greater amount of asbestos fibers to stay in the lungs of a child who breathes in asbestos compared to the amount that stays in the lungs of an adult.

Can asbestos-related disease be serious?

Asbestos-related disease can be serious, although not everyone exposed to asbestos has health problems. If health problems develop, they may range from problems that are easily managed to problems that severely limit quality of life—and some may cause death.

What are the symptoms of diseases related to asbestos?

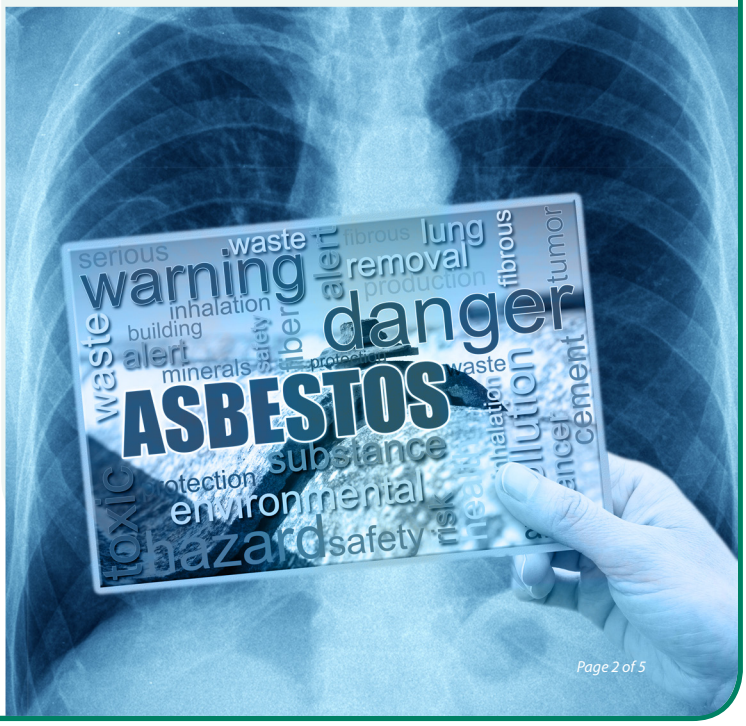
If you think you may have been exposed to asbestos, talk to your doctor about it. Most people don't show any signs or symptoms of asbestos-related disease for 10 to 20 years or more after exposure. When symptoms do appear, they can be similar to those of other health problems. Only a doctor can tell if your symptoms are related to asbestos.

Some non-cancer diseases are related to asbestos.

- **Asbestosis** is scarring of the lungs caused by breathing asbestos fibers. Oxygen and carbon dioxide do not pass in and out of scarred lungs easily, so breathing becomes harder. Asbestosis usually occurs in people who had very high exposures over a long time, such as work-related exposure. Smoking increases the risk of developing asbestosis. Other late stage symptoms of asbestosis include increasing shortness of breath, an ongoing cough, and chest pain.
- **Pleural disease** causes changes in the membrane surrounding the lungs and chest cavity (pleura). The membrane may become thicker throughout (diffuse pleural thickening) or in isolated areas (pleural plaques), or fluid may build up around the lungs (known as a pleural effusion). Not everyone with pleural changes will have problems breathing, but lung function tests may show signs of less efficient breathing in some people. Some people may develop continued shortness of breath with exercise or even at rest if their lung function has decreased.

Some cancers are related to asbestos.

- **Lung cancer** is a malignant tumor that invades and blocks the lung's air passages. The types of tumors found in lung cancer caused by exposure to asbestos are the same as those found in lung cancer caused by smoking tobacco. Smoking combined with asbestos exposure greatly increases the chance of developing lung cancer. Symptoms for lung cancer can vary. Some late-stage symptoms can include chronic cough, chest pain, unexplained weight loss, and coughing up blood.
- **Mesothelioma** is a rare cancer almost always caused by asbestos exposure. It occurs in the membrane that covers the lungs and chest cavity (pleura), the membrane lining the abdominal cavity (peritoneum), or membranes surrounding other internal organs. Some late-stage symptoms of lung mesothelioma include chest pain, ongoing shortness of breath, and unexplained weight loss. Coughing up blood is not common.
- **Other cancers**: Asbestos exposure can cause cancer of the larynx and ovary, and current evidence suggests asbestos may cause cancer of the pharynx, stomach, and colorectum.



How do doctors diagnose diseases related to asbestos?

What will my doctor do?

Your doctor will first take your medical history and perform a physical exam. He or she will then decide if you need additional testing.

What are some tests to help diagnose diseases related to asbestos?

Based on your medical history and physical exam, your doctor may recommend any of these types of lung tests for you:

- A chest X-ray is the most common test used to see if you have possibly been exposed to high amounts of asbestos. The X-ray cannot detect the asbestos fibers themselves, but it can detect early signs of lung changes caused by asbestos. If the chest X-ray shows spots on the lungs, they may or may not be asbestos-related. They may be normal variations or related to infections or other diseases. Only a doctor trained in reading X-rays can determine whether a spot is asbestos-related.
- A pulmonary function test (PFT) is a simple breathing test a doctor may perform to see how well your lungs are working. In this test, a person blows big breaths into a machine called a "spirometer."
- A high resolution computerized tomography scan (HRCT) is a type of imaging that usually delivers a much higher dose of radiation than a chest X-ray. An HRCT scan may detect early changes of disease more effectively than a chest X-ray. Doctors usually recommend an HRCT scan only when the results of the chest X-ray are not conclusive
- A low dose computerized tomography scan (LDCT) is a type of imaging that has less detail but also a lower radiation dose than HRCT. An LDCT is sometimes considered for screening people who have many risk factors for lung cancer.
- Bronchoalveolar lavage (BAL) is a way to collect a sample of material from a patient's lung. A small flexible tube is inserted through the nose and down the airway. A small amount of salt solution is injected into the tube and then sucked back up. The solution then contains material from the lung which can be analyzed. This test cannot predict illness from asbestos exposure, and doctors perform it only under special circumstances.
- A lung biopsy is a sample of lung tissue taken through a needle or during surgery while the patient is sedated. This tissue is examined under a microscope. Doctors may perform a lung biopsy if they suspect a patient has cancer.

Can tests detect asbestos in urine or phlegm?

Testing urine or phlegm (material coughed up from the lungs) is not effective in determining how much asbestos may be in the lungs. Nearly everyone has low levels of asbestos in these body fluids, so these tests cannot predict the risk of illness. More research may improve the usefulness of these tests.

Should I have my children tested?

Doctors do not recommend taking X-rays of children's lungs to look for asbestos-related disease, because changes in the lung usually take years to develop. In addition, radiation from X-rays may be a higher exposure risk for children.

Can asbestos be removed from the lungs?

No known method exists to remove asbestos fibers from the lungs once they are inhaled. Some types of asbestos are cleared naturally by the lungs or break down in the lungs.

How do doctors treat diseases related to asbestos?

What is preventive care?

Preventing further harm to the respiratory system can slow down the progress of asbestos-related disease or lower the chances of developing an asbestos-related disease. Preventive care guidelines related to asbestos exposure include

- Having regular medical examinations
- Getting regular vaccinations against flu and pneumococcal pneumonia
- Quitting smoking
- Avoiding further asbestos exposure

What is supportive care?

Supportive care includes actions that may help reduce the symptoms of the disease, but cannot heal it or reverse the disease process. Doctors recommend supportive care that fits the symptoms and the disease. For example, for someone whose disease makes breathing harder, the doctor may prescribe extra oxygen.

How do doctors treat asbestosis?

Doctors use both preventive and supportive care to treat asbestosis. Asbestosis can remain stable or get worse, but it rarely gets better. Scarring of the lungs is permanent.

How do doctors treat pleural changes?

Treatment for pleural changes involves preventive and supportive care as described above.

How do doctors treat lung cancer?

Treatment for lung cancer treatment depends on the

- Location of the cancer
- Stage of the disease
- Age of the patient
- General health of the patient

Treatment options include

- Chemotherapy
- Radiation therapy
- A combination of chemotherapy and radiation therapy
- Removing the diseased part of the lung through surgery

How do doctors treat mesothelioma?

Depending on the stage of the disease, mesothelioma treatment options include

- Chemotherapy
- Radiation
- Surgery

How can I reduce my exposure to asbestos?

If you work around asbestos or asbestos-containing materials,

- Avoid touching or disturbing the materials unless you have been properly trained to do so safely and following appropriate regulations.
- Wear appropriate personal protective equipment.
- If you live in a house or apartment with aging insulation, siding, or materials that may contain asbestos (housing built from the 1950s to the 1970s), or with vermiculite attic insulation.
- Avoid disturbing the materials.
- If the materials are breaking down or need to be replaced, talk to your local or state environmental agency or a certified asbestos contractor about having the asbestos safely removed.
- To avoid contaminating your house and the environment with asbestos, choose contractors who will strictly follow all laws for asbestos removal and disposal.

If you live in an area with natural asbestos deposits or near an area contaminated by old asbestos-containing products, keep asbestos levels low in your home by

- Using wet cleaning methods and a high efficiency particulate air (HEPA) vacuum to clean
- Using doormats
- Removing shoes before entering
- Keeping windows closed on windy days to keep asbestos out

If you work or play outside in areas with natural asbestos deposits or near areas contaminated by old asbestos-containing products, reduce your exposure by

- Avoiding dust
- Using water to wet soil before gardening or planting or before team sports events
- Spraying your patio with water instead of sweeping it
- Staying on pavement or ground covered with grass or mulch

For more information

How can I learn more?

If you want more information on limiting your environmental exposure to asbestos, or if you have specific questions, contact ATSDR:

800-CDC-INFO (800-232-4636)

TTY 888-232-6348

ATSDR's web site for asbestos has more information and links to other resources:

http://www.atsdr.cdc.gov/asbestos