

## HEALTH EFFECTS

Asbestos can kill you. You must take extra precautions when you work with asbestos. Just because you do not notice any problems while you are working with asbestos, it still may be causing problems that will appear later in life.

### Routes of Entry

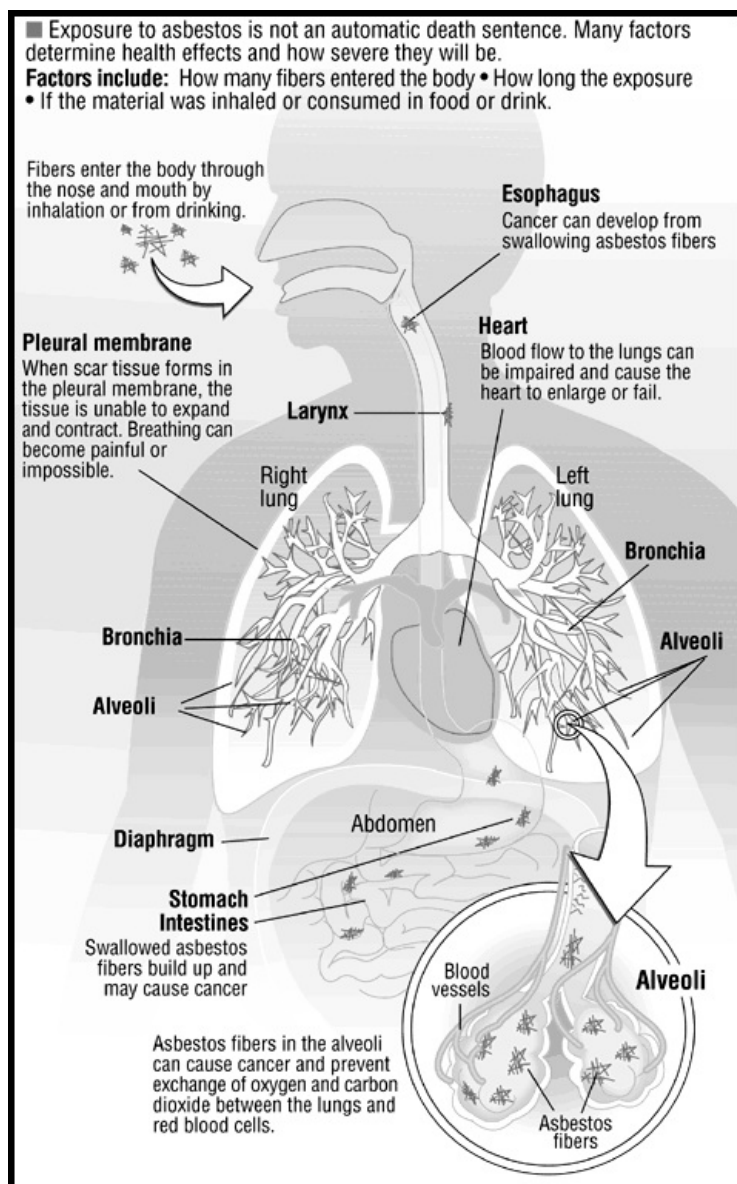
**The asbestos fibers that can harm you are too small to see.** When these fibers get into the air, they can remain there for days. Airborne fibers can move from the containment area to other parts of the job unless special precautions are taken.

### Inhalation

Airborne fibers are very easily inhaled. These fibers are small enough to enter the smallest areas of the lungs. Your body has several natural defense systems to filter the air that you breathe. Asbestos fibers are so small that they can get past the body's natural defenses.

### Nasal Hair

The first defense is nasal hair. Some of the larger fibers are trapped here,



but the smaller fibers can get past and enter the breathing passages.

### **Trachea and Bronchial Tubes**

As the air enters the body, it travels down the trachea into the bronchial tubes. The trachea and bronchial tubes are coated with a sticky substance called **mucous**. Larger fibers are trapped in the mucous.

There are tiny, hairlike structures called **cilia** lining these tubes. The cilia are designed to move the mucous up and out of the bronchi where it can be expelled. Smoking can interfere with this process. Unfortunately, much of the mucous is swallowed and enters the digestive system.

### **Alveoli**

The bronchi end in tiny sacs called alveoli. **This is where the air exchange takes place.** The body gives off waste carbon dioxide and takes on oxygen.

Asbestos fibers can damage the alveoli. When the fibers enter the alveoli, they puncture the walls of the alveoli. The body sends **white blood cells** (macrophages) to repair the damage. They cannot destroy the asbestos fibers and eventually die. This causes **scarring** of the walls of the alveoli.

## **Diseases Caused by Inhaling Asbestos**

### **Asbestosis**

This scarring, called **asbestosis**, prevents the exchange of waste carbon dioxide for oxygen. There is **no treatment for asbestosis**. Asbestosis is **a progressive disease**. As more scarring occurs, oxygen exchange is disrupted to the point of causing other health problems. Workers with asbestosis first notice a loss of stamina and tire easily. As the disease progresses, the symptoms become more severe. People with asbestosis usually require supplemental oxygen. They usually suffer from heart problems as a result of lower levels of oxygen in the blood.

## Plural Plaques

Plural plaques are small areas of fibrous tissue on the linings of the plural sac that surrounds the lungs. These lesions harden and cause irritation. **This is a very painful condition.** Plural plaques are usually not fatal, but people with plaques face an increased risk of lung cancer.



Healthy Lung

## Lung Cancer

People who work with asbestosis and do not use the proper protection are at a higher risk of lung cancer. Cancer is an uncontrolled growth of cells that eventually destroys an organ. Lung cancer symptoms include shortness of breath, constant cough, fatigue, weight loss, coughing up blood, and pain. Treatment includes surgery, chemotherapy, and radiation. **There is a poor cure rate with 9 - 13% living 5 years or more.**



Lung w/ Cancer

## Plural Mesothelioma

Plural Mesothelioma is a **rare type** of cancer of the plural sac surrounding the lungs. It is called a “marker disease”.

Mesothelioma is only caused by asbestos. **Most people with mesothelioma die within 6 months to 1 year after detection.** In rare cases (usually extremely early diagnosis), some people have survived 5 years with mesothelioma. There is **no cure** for mesothelioma. Treatment is maintenance drugs to reduce pain.

## Ingestion

Asbestos can also enter the body by **ingestion, or swallowing.** Asbestos fibers that are expelled from the respiratory system are swallowed with the mucous. They are also swallowed if they come in contact with the food and liquids that workers drink. This is why you are not allowed to eat or drink in contaminated areas.

If you do not decontaminate properly when you leave the work area, you bring asbestos with you. If you eat or drink without properly decontaminating, some of the asbestos will get on the food and you will

swallow it. If the work area is not contained properly, the asbestos will spread to other parts of the job and you will be exposed.

Asbestos is not absorbed into the blood the way other nutrients are from the digestive system. The fibers penetrate the linings of the stomach and intestines.

## Diseases Caused by Swallowing Asbestos

### Digestive System Cancers

Cancers of the mouth, esophagus, stomach, and the small and large intestine have all been linked to asbestos exposure. If the cancer is found early, it is relatively easy to treat.

Some of the early signs of digestive system cancers are: change in bowel patterns; blood in the stool; unexplained weight loss; and fatigue.

### Peritoneal Mesothelioma

Peritoneal mesothelioma is similar to plural mesothelioma. It is also a “marker disease”. It is only caused by exposure to asbestos. Peritoneal Mesothelioma is characterized by weight loss, severe abdominal pain, and a swollen abdomen. There is no cure for peritoneal mesothelioma. Treatment is maintenance drugs to reduce pain.

## How Long Does Take to Get Sick From Asbestosis?

All asbestos diseases have a Latency Period. The latency period is the time between exposure and the time that symptoms become noticeable.

**The latency period for asbestos diseases is between ten and forty years.** Even if you have not worked with asbestos for many years, it can still cause problems.

Children who are exposed to asbestos seem to suffer the effects much sooner than adults. This is because their bodies are developing much faster. Children may show symptoms in as little as five years. The

asbestos related disease may progress much faster than it would in an adult.

Not everyone who is exposed to asbestos will get an asbestos-related disease, but anyone who is exposed has a greater risk of getting an asbestos disease. All of the asbestos diseases are difficult to treat, and most are impossible to cure. The best thing to do is prevent them.

## How Much Asbestos Does It Take To Affect Someone?

Most asbestos diseases are “Dose Related”. This means that **the higher the dose, or exposure, the greater the risk**. The one disease that is not dose related is mesothelioma. Even very small amounts of asbestos can cause mesothelioma.

## Who Is At Risk From Asbestos?

People who work with asbestos have a greater risk of getting an asbestos related disease. They are more likely to suffer from asbestos related problems than the general population.

Families of people who work with asbestos are also at a greater risk. If the worker does not decontaminate properly, they will take asbestos home with them. Spouses and children have been exposed to asbestos from a worker’s contaminated clothing. Proper decontamination is vital to your family’s safety.

## Smoking and Asbestos Diseases

Workers who smoke are at a greater risk of getting an asbestos-related disease than non-smokers. Smoking affects the cilia in the bronchial tubes. **One cigarette can paralyze the cilia for up to eight hours**. If the cilia are not working properly, they cannot remove the mucous that has trapped the asbestos fibers. Over time, smoking can destroy the cilia, thus removing an important defense mechanism.

If you work with asbestos and smoke, get help to stop smoking. There are several organizations that offer assistance in stopping smoking. Contact them for help.

## KEY FACTS

**Asbestos can make you sick or even kill you.**

**Without proper protection, asbestos can enter your body. You do not know it is there. You cannot see it. You cannot smell it. You must take special precautions when working with asbestos.**

**Asbestos can cause four types of disease:**

- **Asbestosis - Often called “White Lung”. Asbestosis is a scarring of the lung that interferes with air exchange in the alveoli.**
- **Mesothelioma - A “Marker Disease” that is only caused by exposure to asbestos. It is a rare type of cancer but is always fatal.**
- **Lung Cancer - Lung cancer is the biggest killer of asbestos workers. It is aggravated by smoking. Asbestos workers who smoke are 80 times more likely to get lung cancer as the general population.**
- **Other Cancers - Cancers of the digestive system**

**Dose-Related - The more asbestos fibers you breathe or swallow, the more likely you are to get an asbestos related disease. The exception is mesothelioma.**

**Latency Period - All asbestos diseases have a latency period. The latency period is the time between exposure and when you become sick. The typical latency period for asbestos related diseases is from 10 to 40 years. The exception is children who may suffer the effects of exposure much sooner.**

## MEDICAL SURVEILLANCE

If you are going to work with asbestos, you must have special medical exams. These exams are required by law, and must be done by a medical doctor who specializes in occupational medicine. Occupational diseases are diseases that are caused by your job. **Asbestos diseases are occupational diseases.**

### Before Employment

If you work with asbestos, you must have a special kind of medical exam before you start work. This is called a **baseline** exam.

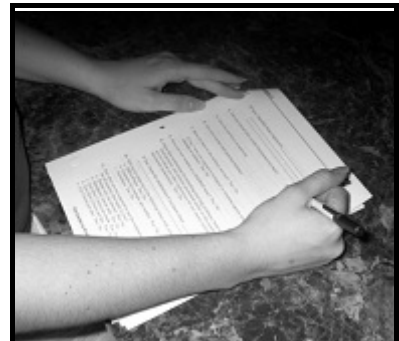
The baseline will be the first exam that you will receive. It is a long and complete exam that looks for any medical condition that may be made worse by asbestos exposure. This exam is for your protection.

Some conditions that may get worse with asbestos exposure include: asthma; lung cancer; digestive system cancers; heart conditions; and high blood pressure.

### Required Parts of Baseline Medical Exams

#### Medical Questionnaire

The questionnaire takes a detailed work and medical history. This questionnaire is found in Appendix D of the Asbestos Standard. It may not be substituted by any other questionnaire. It will aid in revealing any pre-existing medical conditions.



#### Physical Exam

The physical will concentrate on the organs of the body that are affected by asbestos, such as the lungs, heart, and digestive system. Any conditions that may be made worse by asbestos exposure will be discussed.

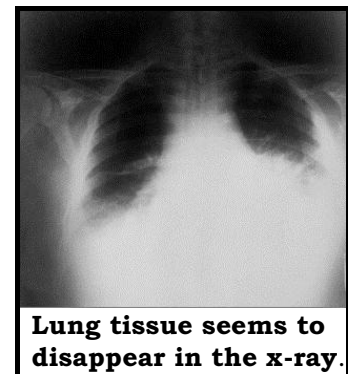
### Pulmonary Function Test

A Pulmonary Function Test is a special test that will show **how well your lungs are working**. It can be used for comparison in later exams to see if there are any problems with your lungs. The Pulmonary Function Test often gives the first clue that the lungs are suffering some sort of damage.

### Recommended Parts of the Medical Exam

#### Lung X-Ray

The doctor may decide to do a lung x-ray to make sure that there is no damage to your lungs before you begin work. The x-ray must be checked by a doctor who is trained in reading x-rays related to occupational lung diseases. They are called **B-Readers**. B-Readers have special training and certification in asbestos related lung x-rays.



#### EKG (electrocardiogram)

An EKG measures the function of the **heart**. Anyone over 40 years of age should have an EKG as a part of an asbestos-related exam.

#### Sputum Cytology

Sputum Cytology is an analysis of your **mucous**. You cough up some mucous and it is examined for **blood or abnormal cells** that may warn of **cancer**.

#### Hemoccult Slide

This test checks for **blood or abnormal cells** in your stool. This may be an early warning of a **digestive system cancer**.

### Yearly Exams

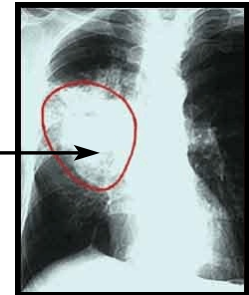
If you continue to work with asbestos, you are required to get a **medical exam every year**. The yearly exams are similar to the baseline exam. They also use a questionnaire. This questionnaire is not nearly as long. It deals with any problems that you may have had in the past year or with any noticeable changes in your health.

The yearly exam **will** include:

- ☒ A full physical exam with emphasis on the lungs, heart, and digestive system.
- ☒ A Pulmonary Function Test.

The yearly exam **may** include:

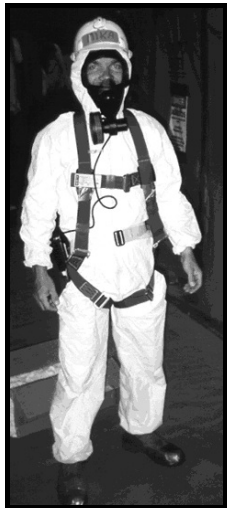
- Chest X-Ray.
- EKG.
- Sputum Cytology.
- Hemocult Slide.



**Cancer**

## Respirator Physical Evaluation

In addition to the Medical Surveillance required for working with asbestos, you will also need an exam for wearing a respirator. This is a special exam that evaluates your ability to work while wearing a respirator.



Anyone who wears a respirator must be medically evaluated before wearing a respirator. The exam is repeated every year. The exam consists of a questionnaire. Any response out of the ordinary requires a followup medical exam.

The employer must furnish to the doctor a list of any protective clothing that will be worn, the anticipated physical work effort, temperatures and humidity of the work area, and the type and weight of the respirator that will be worn.

After the questionnaire and/or physical exam, the doctor must make a written report on recommendations of the employee to wear a respirator, including any limitations.

## Your Medical Exam Results

After your exam, the doctor will write a report and gives a copy to your employer. The report lists any problems that would make it dangerous

for you to work with asbestos. It will also include any medical limitations relating to your work.

**Your employer pays for these exams.** The employer must inform the doctor of any required and recommended tests for the medical exam. The employer must also inform the doctor not to reveal any findings that do not have a direct connection to your working with asbestos.

You have a right to a copy of the doctor's report. **Your employer must give you a copy within 30 days after getting it from the doctor. Keep this report in a safe place. You may need this report 10 or up to 40 years in the future.**

### Medical Records

**Your employer must keep your medical records for 30 years after you leave the job.** If the employer goes out of business, the records are to be sent to the National Institute of Occupational Safety and Health (NIOSH).

Do not count on your employer being in business when you need your medical records. Even the best run businesses lose records. The longer the records have to be kept, the greater the risk that they will be misplaced. **Request a copy of your medical records when you leave the job.**

### Your Part in Medical Surveillance

Protecting your health is a partnership with your employer. There are several things that you as a worker can do to protect your health.

- ✓ **Remember how dangerous asbestos is.** Take all of the required safety precautions. Make sure that you have the right equipment. Make sure that it is working properly. Use the equipment in the proper manner.
- ✓ **Use good work practices.** Work practices are designed to help keep asbestos out of the air.
- ✓ **Quit smoking.** The effects of smoking and asbestos greatly increase

your chances of getting Lung Cancer. There are several organizations to help you quit.

- ✓ **Talk to your doctor.** Inform any doctor you visit that you have worked with asbestos. This will assist the doctor in looking for early signs of health problems associated with asbestos.
  
- ✓ **Continue getting your medical exams.** It is recommended that you continue with the yearly exams even if you no longer work with asbestos. This is very important if it has been 10 or more years since you have worked with asbestos.
  
- ✓ **Know the hazards you are working with.** You have a right to know the hazards associated your job. There are many hazards other than asbestos found on abatement jobs. Chemicals that are used to remove some asbestos are very dangerous. Ask about the hazards and take the required precautions.

<b>RECOMMENDED SCHEDULE FOR CHEST X-RAYS</b>			
<b>YEARS SINCE FIRST WORKED WITH ASBESTOS</b>	<b>AGE NOW 18-35</b>	<b>AGE NOW 36-45</b>	<b>AGE NOW OVER 45</b>
0 - TO 10 YRS	EVERY 5 YRS	EVERY 5 YRS	EVERY 5 YRS
MORE THAN 10 YRS	EVERY 5 YRS	EVERY 2 YRS	ONCE A YEAR

## Key Facts

**Workers must have medical exams before working with asbestos and every year after that.**

**Medical exams are the quickest way to determine if asbestos is making you sick.**

**The medical exam includes:**

- Long questionnaire
- General physical exam
- Lung tests

**Yearly exams include:**

- Short questionnaire
- General physical exam
- Lung tests

**Medical Exams may include:**

- Lung X-Rays
- EKG
- Sputum Cytology
- Hemocult Slide

**Your employer must give you a copy of the doctor's written opinion within 30 days of receiving it from the doctor.**

**Your employer must keep your medical records 30 years after your last day on the job.**