

SILICOSIS

Learn About Silicosis

Silicosis is a lung disease caused by breathing in tiny bits of silica, a mineral that is part of sand, rock, and mineral ores such as quartz. It mostly affects workers exposed to silica dust in occupations such as mining, glass manufacturing, and foundry work. Over time, exposure to silica particles causes scarring in the lungs, which can harm your ability to breathe.

Key Facts

- There are three types of silicosis: acute, chronic, and accelerated.
- It occurs in workers from mines, foundries, sandblasting, and glass manufacturing.
- About 2 million US workers remain potentially exposed to occupational silica.
- There is no cure for silicosis, but it can be prevented.

What Is Silicosis?

There are three types of silicosis:

- Acute silicosis, which causes cough, weight loss, and fatigue within a few weeks or years of exposure to inhaled silica.
- Chronic silicosis, which appears 10 to 30 years after exposure and can affect upper lung areas and sometimes causes extensive scarring.
- Accelerated silicosis, which occurs within 10 years of high-level exposure.

Silicosis can develop within a few weeks to even decades after exposure. When people breathe silica dust, they inhale tiny particles of the mineral silica. This silica dust can cause fluid buildup and scar tissue in the lungs that cuts down your ability to breathe. This can lead to lung scarring and cough, weight loss, and fatigue.

How Silicosis Affects Your Body

Silicosis affects the lungs by damaging the lining of the lung air sacs. Once this begins, it leads to scarring and, in some situations, to a condition called progressive massive fibrosis. This condition happens when there is severe scarring and stiffening of the lung, which makes it difficult to breathe.

People with acute silicosis experience cough, weight loss, tiredness, and may have fever or a sharp chest pain. You may also have shortness of breath over time, especially with chronic silicosis. Your health-care provider might hear crackles or wheezing when listening to your lungs. Having silicosis increases the risk of other problems, such as tuberculosis, lung cancer, and chronic bronchitis.

Each type of silicosis affects the body somewhat differently:

- In acute silicosis, the lungs become very inflamed and can fill with fluid, which causes severe shortness of breath and low blood oxygen levels.
- In chronic silicosis, the silica dust causes areas of swelling in the lungs and chest lymph nodes, which makes breathing more difficult.
- In accelerated silicosis, swelling in the lungs and symptoms occur faster than in chronic silicosis.

Over time, lung capacity decreases, and people with silicosis may need support with oxygen and other devices to help them breathe.

How Serious Is Silicosis?

Silicosis can cause major lung damage and accounts for more than 100 deaths each year in the United States.

Silicosis Symptoms, Causes, and Risk Factors

What Are the Symptoms of Silicosis?

Symptoms of silicosis can appear from a few weeks to many years after exposure to silica dust. Symptoms typically worsen over time as scarring in the lungs occurs.

Cough is an early symptom and develops over time with exposure to silica that is inhaled.

In acute silicosis, you may experience fever and sharp chest pain along with breathing difficulty. These symptoms can come on suddenly.

In chronic silicosis, you may only have an abnormal chest x-ray in the beginning and then slowly develop a cough and breathing difficulty. More than a third of people with silicosis have phlegm production and cough. Chronic bronchitis-like symptoms may occur, and the lungs have additional sounds called wheezes and crackles. As extensive scarring progresses over time, you may see signs of chronic lung disease, such as leg swelling, increased breathing rate, and bluish discoloration of the lips.

What Causes Silicosis?

Silicosis is caused by exposure to crystalline silica, which comes from chipping, cutting, drilling, or grinding soil, sand, granite, or other minerals. Any occupation where the earth's crust is disturbed can cause silicosis. A long list of occupations are known that expose workers to crystalline silica that is inhaled. These include:

- Various forms of mining, such as coal and hard rock mining
- Construction work
- Tunnel work
- Masonry
- Sand blasting
- Glass manufacturing
- Ceramics work
- Steel industry work

- Quarrying
- Stone cutting

What Are Risk Factors of Silicosis?

Breathing crystalline silica causes silicosis and the main risk factor is exposure to silica dust.

You can prevent silicosis by limiting exposure. There are national guidelines on exposure limits over a lifetime of working.

If you work in a job that exposes you to silica dust, your employer must, by law, give you the correct equipment and clothing you need to protect yourself. You are responsible for using it—always—and for taking other steps to protect yourself and your family as you leave your job site and head home. NIOSH also recommends that medical examinations occur before job placement or upon entering a trade, and at least every 3 years thereafter.

Patients with silicosis have an increased risk of other problems, such as tuberculosis, lung cancer, and chronic bronchitis. If you are a smoker, quitting may help, as smoking damages the lungs.

When to See Your Doctor

Any person who works in industries with exposure to inhaled silica should get regular health checkups and be monitored for signs and symptoms of lung disease. In addition, if you have a cough, phlegm, or breathing difficulty that is not improving, you should be closely evaluated by your doctor. Some people with acute silicosis also have fever, weight loss, and fatigue.

Diagnosing and Treating Silicosis

If you work or have worked in an occupation with exposure to inhaled silica and have a cough, phlegm, or breathing difficulty, you should be evaluated for silicosis.

What to Expect

It may take multiple doctor's visits and tests to diagnose silicosis. Once diagnosed, expect long-term monitoring and follow-up. You will also need to take measures to avoid further exposure.

How It's Diagnosed

Having worked in an at-risk industry is the best clue for your doctor, and a chest X-ray is crucial to diagnose the type of silicosis. Your visit will include a physical examination - your health-care provider will listen to your lungs - and a chest X-ray. Your chest X-ray may be normal, or you may have a lot of scarring in the lungs. There may be a series of tests, such as:

- Breathing tests
- High resolution CT scan of the chest
- A bronchoscopy to evaluate the inside of the lungs
- A biopsy of the lungs

Additional tests, such as mucus (sputum) evaluation, may be needed to assess for associated diseases, such as tuberculosis (TB).

How Silicosis Is Treated

There is no cure for silicosis. Prevention is still the best way to avoid the disease. Once silicosis has developed, your doctor will assess the degree of lung damage with tests. Some people may need urgent treatment with oxygen and support for breathing. Others may need medicines to decrease sputum production, such as inhaled steroids. Some may need inhaled bronchodilators, which relax the air tubes.

Once the disease advances, the management is similar to many other chronic lung diseases and needs a multidisciplinary or team approach. To keep the disease from getting worse, it is important to stay away from any additional sources of silica and other lung irritants, such as indoor and outdoor air pollution, allergens and smoke. You may consider counseling to discuss changing occupations.

Acute silicosis may need to be treated with steroids, and a lung transplant may need to be considered.

Living With Silicosis

Patients with silicosis need to maintain their health by leading an active lifestyle and avoiding further exposure. Quitting smoking, getting adequate exercise, managing your weight, and monitoring for complications are all important.

What to Expect

Many people with silicosis have chronic symptoms and a decrease in lifespan. However, over the last few decades, supportive care and earlier detection have improved survival significantly.

Managing the Disease

Appropriate diagnosis and treatment will make life with silicosis easier. Using the proper medications and seeing an experienced specialist are important to managing the disease. Here are a few tips to manage silicosis:

- Quit smoking.
- Get yearly vaccinations, such as pneumococcal and influenza.
- Be vigilant about watching for the development of TB or other infections.
- Avoid further exposure to silica.
- Educate yourself about the disease.
- Consider enrolling in clinical trials.
- Have a plan to manage flare-ups of the disease.

Oxygen support or other ways to manage chronic lung failure, like the use of noninvasive ventilator devices, may be needed.

Finding Support

The Lung Association recommends patients and caregivers join our Living with Lung Disease Support Community to connect with others facing this disease. You can also call the Lung Association's Lung Helpline at 1-800-LUNGUSA to talk to a trained respiratory professional who can help answer your questions and connect you with support.

Questions to Ask Your Doctor About Silicosis

Making notes before your visit, as well as taking along a trusted family member or friend, can help you through the first appointment with your doctor. You'll want to provide a complete exposure history and work together on making a plan for a team approach to manage silicosis.

- What tests do I need to confirm my diagnosis?
- How can the disease be monitored?
- What choices do I have to assist with my symptoms?
- What is the prognosis for my situation?
- Are there any advances in therapy?
- Are there any counseling resources available?
- Where can I look for information on methods to obtain compensation?
- What options are available to help me quit smoking?
- What vaccines do I need?
- Do I have progressive massive fibrosis?
- Do I need a lung transplant?

Author

Sai Praveen Haranath, MBBS, MPH, FCCP

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