Diseases Fact Sheet - Silicosis

South Dakota Department of Health

Office of Disease Prevention Services - 605-773-3737 -(1-800-592-1861 in South Dakota only)

This material is provided for informational purposes only and is not a substitute for medical care. We are not able to answer personal medical questions. Please see your health care provider concerning appropriate care, treatment or other medical advice.

What is it?

Silicosis is a lung disease caused by breathing in tiny bits of silica, a mineral that can be found in sand, rock, dirt and mineral ores (such as quartz). (1) Over time, an exposure to silica particles may cause scarring in the lungs, resulting in an inflammation of the tissue within the lungs, eventually causing fibrosis, which may harm your ability to breathe efficiently.(2)

Who gets silicosis?

Silicosis mostly affects workers exposed to crystalline silica, or silica dust, in occupations such as mining, glass manufacturing, construction work, tunnel work, masonry, sand blasting, ceramics, quarrying, stone cutting and foundry work. (3) Typically silicosis is a chronic disease where symptoms do not develop for many years.

Farmers may also develop silicosis due to an exposure to crystalline silica in the soil of farmland when it's worked, such as plowing or disking. Both plowing and disking may release dust particles into the air that may include silica dust that can be breathed in by the farmer. Breathing in silica dust may irritate the lungs and eventually lead to silicosis.

How do you develop silicosis?

You get silicosis by breathing in silica dust which irritates the lungs. The development of silicosis causes scarring within your lungs and may cause a buildup of scar tissue possibly resulting in progressive massive fibrosis (PMF) (4).

How does silicosis affect you?

Silicosis can take weeks to decades of exposure to develop. Once developed, possible side effects may include difficulty breathing, chronic cough, weight loss and fatigue. Over time lung capacity may decrease requiring the support of oxygen or other devices to help with breathing. Silicosis also may increase the risk of other diseases such as tuberculosis, lung cancer, nocardiosis and chronic bronchitis. (4, 5)

There are three types of silicosis:

- **Acute silicosis** (also known as silicoproteinosis) - takes a few weeks up to a year to develop. Scarring of the lungs is minimal and symptoms may include coughing and a fluid buildup in the lungs resulting in possible low blood oxygen levels.
- **Chronic silicosis** - takes 10 to 30 years to develop. Scarring of the lungs is more severe and symptoms may include coughing and shortness of breath.
- **Accelerated Silicosis** - takes under 10 years to develop. Scarring of the lungs is minimal and the symptoms are similar to those of chronic silicosis but the disease develops over a shorter time period.

What are the symptoms of silicosis?

- Cough
- Weight loss
- Fatigue
- Difficulty breathing
- Scarring of the lungs
- Fluid buildup in the lungs
- Reduced lung capacity
- Low blood oxygen levels (which may lead to cyanosis)

What is crystalline silica?

Crystalline silica comes from the breakdown of sand, granite, soil, or other minerals. Silica dust (also known as quartz dust or silicon dioxide) is the most common mineral on the earth's surface. When broken down, the crystalline silica can be distributed through the air in a fine particulate form which can be breathed in by people working on or near the material that is being disturbed. The breakdown of crystalline silica material may include chipping, cutting, drilling or grinding the material into smaller segments/chunks.

What is the treatment for silicosis?

There are currently no treatments for silicosis - preventative protection and education is the first and only step for treating silicosis. If you have a concern for developing silicosis due to your profession or hobbies you should use preventative protection to reduce your risk.

How do I protect myself from silicosis?

When working with or around silica dust, or any dust disturbing job or hobby, wear a protective mask to reduce the amount of silica you breathe in. For example if you are operating a sand blaster for home use, find a respirator that filters out particles (like a half face air purifying respirator) or a respirator that prevents exposure from particles (like a contained environment (CE) abrasive blasting supplied air respirator (SAR).

- Never eat, drink, or smoke near silica dust exposure areas, and wash your hands and face before eating, drinking or smoking.
- Do not use compressed air for dusting areas.
- Try to use wet methods when chipping, sanding, cutting, drilling, and grinding silica containing materials to reduce the amount of dust entering the air.
- Whenever possible substitute non-silica based blasting material for silica based blasting material. (6)

How do I know when I have silicosis?

A visit to the doctor is required to diagnose silicosis. A three step process is used to diagnose silicosis. First, the patient must have a known exposure to silica dust (e.g., a job or home near silica dust). Secondly, a chest x-ray must indicate that the patient has damaged lung tissue, and lastly a pulmonary function test must be completed to determine if the patient airways are restricted. A bronchoscopy may also be done using a camera to inspect the lung tissue.

Additional Information:

Centers for Disease Control and Prevention

National Institute for Occupational Safety and Health

References

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