Occupational Lung Diseases

What are occupational lung diseases?

Repeated and long-term exposure to certain irritants on the job can lead to an array of lung diseases that may have lasting effects, even after exposure ceases. Certain occupations, because of the nature of their location, work, and environment, are more at risk for occupational lung diseases than others. Contrary to a popular misconception, coal miners are not the only ones at risk for occupational lung diseases. For instance, working in a car garage or textile factory can expose a person to hazardous chemicals, dusts, and fibers that may lead to a lifetime of lung problems if not properly diagnosed and treated.

Consider these statistics from the American Lung Association:

- Occupational lung diseases are the number one cause of work-related illness.
- Most occupational lung diseases are caused by repeated, long-term exposure, but even a severe, single exposure to a hazardous agent can damage the lungs.
- Occupational lung diseases are preventable.
- Smoking can increase both the severity of an occupational lung disease and the risk of lung cancer.

What are the symptoms of an occupational lung disease?

The following are the most common symptoms of lung diseases, regardless of the cause. However, each individual may experience symptoms differently. Symptoms may include:

- coughing
- shortness of breath
- chest pain
- chest tightness
- abnormal breathing pattern

The symptoms of occupational lung diseases may resemble other medical conditions or problems. Always consult your physician for a diagnosis.

How are occupational lung diseases diagnosed?

Occupational lung diseases, like other lung diseases, usually require an initial chest x-ray for preliminary diagnosis. In addition, various tests may be performed to determine the type and severity of the lung disease, including:

- pulmonary function tests - diagnostic tests that help to measure the lungs' ability to exchange oxygen and carbon dioxide appropriately. The tests are usually performed with special machines that the person must breathe into.
- microscopic examination of tissue, cells, and fluids from the lungs
- biochemical and cellular studies of lung fluids
- measurement of respiratory or gas exchange functions
- examination of airway or bronchial activity
**What is the difference between inorganic and organic dust?**
Particles in the air may cause lung problems. Often called particulate matter (PM), particles can consist of a combination of dust, pollens, molds, dirt, soil, ashes, and soot. Particulate matter in the air comes from many sources, such as factories, smokestacks, exhaust, fires, mining, construction, and agriculture. The finer the particles are, the more damage they can do to the lungs, because they are easily inhaled deep into the lungs, where they are absorbed into the body.

"Inorganic" refers to any substances that do not contain carbon, excluding certain simple carbon oxides, such as carbon monoxide and carbon dioxide. "Organic" refers to any substances that do contain carbon, excluding simple carbon oxides, sulfides, and metal carbonates.

**Examples of inorganic dust diseases:**

**asbestosis**
Asbestosis is caused by the inhalation of microscopic fibers of asbestos. The disease is progressive, resulting in scarring of the lungs with fibrous tissue, according to the American Lung Association. A total of 3,922 people died of asbestosis between 1979 and 1996.

Asbestos is a mineral fiber that was added in the past to certain products for strengthening, heat insulation, and fire resistance. Most products today are not made with asbestos. Normally safe when combined with other materials, asbestos is hazardous to the lungs when the fibers become airborne (such as when a product deteriorates and crumbles).

The risk of asbestos exposure is not just limited to the workplace. Since many homes were built with asbestos products (especially those homes built before 1978). Examples of products that may have previously contained asbestos include:

- insulation blankets or tape around steam pipes, boilers, and furnace ducts
- resilient floor tiles
- vinyl sheet flooring backing
- adhesives used to install floor tiles
- insulation made of cement sheet, millboard, and paper used around furnaces and wood-burning stoves
- door gaskets in furnaces, wood stoves, and coal stoves
- sprayed soundproofing or decorative material on walls and ceilings
- patching and joint compounds for walls and ceilings
- cement roofing, shingles, and siding

If the asbestos-containing materials are in good condition, they are generally safe if left alone. If you have questions concerning asbestos in your home, office, or work environment, you may want to consider having the materials in question inspected. Removal of asbestos-containing material should be undertaken by a specially-trained contractor.

**coal worker's pneumoconiosis**
Coal worker's pneumoconiosis is caused by inhaling coal dust. Also known as black lung disease, the condition, in severe cases, is characterized by scarring on the lungs (which often permanently damages the lungs and may lead to shortness of breath). About 4.5 percent of coal miners have coal worker's pneumoconiosis.

**silicosis**
Silicosis is a lung disease caused by inhaling free crystalline silica, a dust found in the air of mines, foundries, blasting operations, and stone, clay, and glass manufacturing.
facilities. Characterized by scarring of the lungs, silicosis itself can increase the risk for other lung diseases, including tuberculosis (a chronic, bacterial infection that usually infects the lungs). About 300 people die of silicosis each year, according to the American Lung Association. To date, an estimated 1.6 million workers are believed to have been exposed to the dust, with approximately 60,000 who are expected to suffer from silicosis.

Examples of organic dust diseases:

byssinosis
Byssinosis is caused by dust from hemp, flax, and cotton processing. Also known as brown lung disease, the condition is chronic and characterized by chest tightness and shortness of breath. Byssinosis affects an estimated 35,000 textile workers, to date, both former and current.

hypersensitivity pneumonitis
Hypersensitivity pneumonitis is a lung disease caused by the inhalation of fungus spores from moldy hay, bird droppings, and other organic dusts. The disease is characterized by inflamed air sacs in the lungs, leading to fibrous scar tissue in the lungs and abnormal breathing. There are variations of hypersensitivity pneumonitis depending on the occupation, including cork worker's lung, farmer's lung, and mushroom worker's lung.

occupational asthma
Occupational asthma is caused by inhaling certain irritants in the workplace, such as dusts, gases, fumes, and vapors. Characterized by common asthma symptoms (such as a chronic cough and wheezing), occupational asthma is a reversible condition when diagnosed at an early stage. Persons at higher risk for occupational asthma often work in manufacturing and processing operations, farming, animal care, food processing, cotton and textile industries, and refining operations.

How can occupational lung diseases be prevented?
The best prevention for occupational lung diseases is avoidance of the inhaled substances that cause lung diseases. The National Heart, Lung, and Blood Institute (NHLBI) recommends taking other preventive measures, as well, including:

• Do not smoke. Smoking can actually increase the risk for occupational lung disease.
• Wear proper protective devices, such as facial masks, when around airborne irritants and dusts.
• Evaluate lung function with spirometry (an evaluation of lung function performed in the physician's office) as often as recommended by your physician to familiarize yourself with your lung function.
• Educate your workers concerning the risks of lung disease.
• Hire a specially-trained occupational health expert to investigate your work environment for risks for occupational lung diseases.

Treatment of occupational lung diseases:
Treatment will be determined by your physician based on:

• your age, overall health, and medical history
• extent and type of lung disease
• your tolerance for specific medications, procedures, or therapies
• expectations for the course of the disease
• your opinion or preference

Consult your physician for more information regarding the treatment of occupational lung diseases.