

Coal Workers' Pneumoconiosis

What is Coal Workers' Pneumoconiosis?

“Pneumoconioses” are chronic lung diseases caused by inhalation of mineral dusts. The most common types of pneumoconioses are asbestosis, silicosis, and coal worker’s pneumoconiosis (CWP). Coal workers are at risk for coal worker’s pneumoconiosis (CWP). There are two types of CWP: simple and complicated CWP. Complicated CWP is also called “progressive massive fibrosis.” Both are due to inhalation of coal dust.

Under the National Institute for Occupational Safety and Health (NIOSH) surveillance regulations, the number of workers with disease decreased drastically; unfortunately, since 2000, that number has steadily increased.

What are the symptoms of Coal Worker’s Pneumoconiosis?

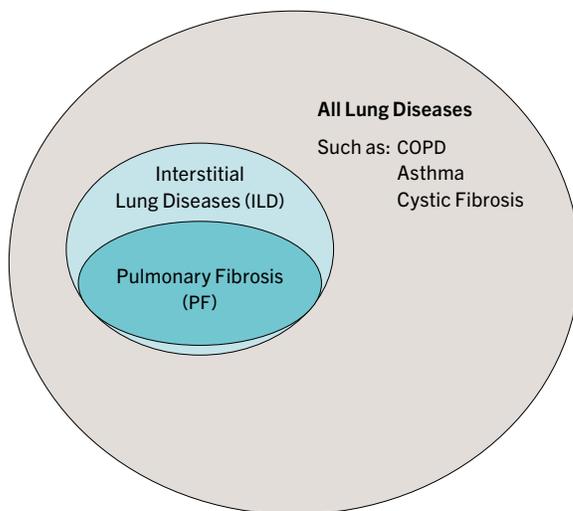
While some people with CWP do not have symptoms, others develop breathlessness and cough with sputum. Sometimes the sputum can be black or can contain blood.

What causes Coal Worker’s Pneumoconiosis?

Coal workers are exposed to many different inhaled substances: coal dust, silica dust, diesel exhaust, carbon monoxide, and other particles and gases. All together these exposures are called “coal mine dust.” Underground coal workers are exposed to more coal mine dust than those who work on the surface, but everyone is at risk. Ventilation systems and personal protective equipment (such as respirators) can lower, but not eliminate, the risk. Genes also seem to contribute to the risk of CWP.

What makes Coal Worker’s Pneumoconiosis different from other forms of PF?

While similar in some ways to other forms of PF, CWP has a specific visual appearance on CT scans (also known as CAT scans) and lung biopsies. Unlike patients with idiopathic pulmonary fibrosis, many patients with CWP never develop any symptoms.



TYPE OF PULMONARY FIBROSIS	CLUES THAT DOCTORS USE
Drug-induced	Prior or current use of amiodarone, nitrofurantoin, chemotherapy, methotrexate, or other drugs known to affect the lungs
Radiation-induced	Prior or current radiation treatment to the chest
Environmental (called hypersensitivity pneumonitis)	Exposure to mold, animals, or other triggers
Autoimmune (called connective tissue disease-related)	Joint inflammation, skin changes (particularly on the fingers and face), dry eyes or mouth, abnormal blood tests
Occupational (called pneumoconiosis)	Prior or current exposure to dusts, fibers, fumes, or vapors that can cause PF (such as asbestos, coal, silica, and others)
Idiopathic	When no cause can be identified

How is Coal Worker's Pneumoconiosis diagnosed?

Since the Federal Coal Mine Safety Act of 1969 established the Coal Workers Health Surveillance Program (CWHSP), coal workers have gone through medical surveillance. Surveillance includes respiratory health surveys, breathing studies (spirometry) and chest x-rays that are confidential, free of charge and that can be readily shared with the worker. In 2014, the Mine Safety and Health Administration added new regulations, surveillance requirements and protection for coal miners including the expansion of surveillance to surface miners to improve early detection and prevent disease.

A specialist may go on to order additional testing which may include a chest CT Scan and expanded breathing studies in a pulmonary function testing laboratory. Lung biopsies are rarely performed since most patients have an obvious history of exposure.

How is Coal Worker's Pneumoconiosis treated?

There are currently no approved treatments for CWP; therefore, prevention is critical. Workers may also have COPD or emphysema along with CWP and in those individuals, standard COPD treatments such as bronchodilators may help with respiratory symptoms.

While it is rarely needed, the number of lung transplants for CWP have increased. Over 60 workers have been transplanted to date, with approximately 80% of these occurring in the past decade.

Pulmonary rehabilitation, supplemental oxygen, smoking cessation, routine vaccinations (such as influenza and pneumonia vaccination) are also recommended. You can learn more about supplemental oxygen at: <https://www.pulmonaryfibrosis.org/life-with-pf/oxygen-therapy>.

You can learn more about pulmonary rehabilitation at:

<https://www.pulmonaryfibrosis.org/life-with-pf/pulmonary-fibrosis-treatment-options>.

What is my prognosis?

Workers with “simple CWP” often do not develop symptoms. Other workers with “complicated CWP” can develop symptoms that continue to progress for years after they have stopped working.

Pulmonary fibrosis resulting from CWP can lead to lung failure (medically called “respiratory failure”), which is a life-threatening condition. No one can predict exactly how long you will live with CWP. Everyone is different. Your doctor can give you more detailed information about your prognosis.

Are there experimental therapies available?

You can search for research studies closest to you on our PFF Clinical Trial Finder:

trials.pulmonaryfibrosis.org.

References

[Coal Workers' Health Surveillance Program](#)

Acknowledgements

The Pulmonary Fibrosis Foundation is thankful to the following for their assistance in writing and reviewing this fact sheet:

David J. Lederer, MD, MS
Former PFF Senior Medical Advisor, Education and Awareness

Mridu Gulati, MD, MPH
Yale Center Interstitial Lung Disease
New Haven, CT
PFF Exposure Working Group