

## The Importance of Imaging and Functional Tests for Early Detection of Occupational Diseases in Kosovo's Miners

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**Abstract :** Introduction: Workers in Kosovo's mining industry are subjected to hazardous working conditions and airborne particles, such as silica dust, which can cause silicosis and other severe respiratory illnesses. The purpose of this research is to assess the health impacts of such exposures, as well as the importance of imaging and functional testing in detecting pathological changes early on. Methodology: The study is prospective and cross-sectional and was carried out during the year 2024. 626 people (446 miners and 180 non-miners) were enrolled in the study. Subjects underwent spirometry and chest radiography. Data were analyzed with SPSS24. Results: The average age of the participants is 48 years. Demographics and Smoking: Smoking was lower among younger miners compared to the 38-47 age group, where 42.3% were smokers, while in the 18-27 age group, only 2.6% were smokers. Radiological Changes: Radiographic abnormalities in the lungs were seen in 23.1% of miners and 10.6% of non-miners, including small irregular opacities and emphysematous changes. Miners with pulmonary changes belonged to the 58-67 age group, where 48.51% showed imaging changes. Lung function: The FEV1/FVC ratio decreased with the increase in the duration of exposure to silica dust (SiO<sub>2</sub>) and toxic mining gases, indicating a decline in pulmonary function. Impact of Exposure Duration: Longer exposure duration was associated with a higher number of miners experiencing coughs and requiring medical consultations such as CT scans and biopsies. Conclusions: Medical imaging and functional testing are critical for the early diagnosis of lung abnormalities in miners. Findings demonstrate a strong correlation between extended exposure to mine dust and the development of respiratory disorders, emphasizing the importance of preventative measures and routine health monitoring.

**Keywords :** silicosis, miners, imaging., spirometry

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