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Review on: Effect of Dust in Occupational Exposure to the Respiratory System

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Abstract: *Occupational exposure to dust and other respiratory hazards is a significant global health concern, contributing to the development of chronic respiratory diseases such as occupational asthma and chronic obstructive pulmonary disease (COPD). These conditions are prevalent in high-risk industries like construction, mining, agriculture, and manufacturing, where workers are exposed to dust, fumes, gases, and chemical irritants. Occupational asthma, primarily caused by sensitizers (90%) and irritants (10%), is the most common work-related lung disease in industrialized countries. COPD, the fourth leading cause of death globally, is strongly linked to workplace exposures, particularly in non-smokers. Dust exposure, even below recommended limits, can trigger immune responses and chronic inflammation, leading to respiratory diseases. Diagnosis of occupational respiratory diseases involves clinical evaluation, lung function tests (e.g., spirometry), and detailed occupational history. Prevention strategies include primary measures (e.g., reducing exposure through engineering controls and PPE), secondary measures (e.g., early detection via health check-ups), and tertiary measures (e.g., medical management and workplace relocation). Despite existing prevention efforts, underreporting and diagnostic challenges persist. Future research should focus on standardized diagnostic criteria, longitudinal studies, and evaluating prevention programs. Addressing occupational respiratory diseases requires a multi-faceted approach, including enhanced workplace safety, early detection, education, and stronger regulatory frameworks to protect workers' health..*

Keywords: Occupational exposure, Respiratory diseases, Dust exposure, Occupational asthma, Chronic obstructive pulmonary disease (COPD), Spirometry, Prevention strategies, Engineering controls, Workplace safety, Public health

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