

The Impact of Occupational Exposure on Workers' Respiratory Microbiota

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Abstract

1. Introduction

Several recent studies have demonstrated that occupational exposure to chemical and biological pollutants alters the human microbiome. Considering that the respiratory tract is one of the main entry points for foreign substances into the body, this small review aims to explore the effects that different occupational exposures have on workers' respiratory microbiota.

2. Methodology

A PRISMA-based systematic review search was carried out in Scopus, Medline (PubMed) and Web of Science databases, through the combination of the following keywords utilizing the operators "AND" and "OR": "microbiome", "microbiota", "respiratory tract", "airways", "nasal", "occupational" and "worker".

3. Results and Discussion

Among the selected studies, exposure to biological agents by agricultural or health professionals was the most studied occupational risk factor and was found to lead to changes in the workers' microbiota. Changes in oral and nasal microbiota were also detected in workers exposed to chemical agents such as farm workers exposed to pesticides, cooks exposed to fumes, and facility workers exposed to phthalates. More studies are needed to understand the role of occupational exposure in changing the microbiota of the respiratory tract and the health risks associated with this change.

4. Conclusions

This review highlights how occupational exposure to different chemical or biological agents can promote dysbiosis of the respiratory microbiota. This dysbiosis affects the host's immune response and contributes to the development of respiratory diseases.

Keywords: microbiome, microbiota, respiratory tract, occupational exposure, dysbiosis.

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