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Is long-term exposure to transport noise relevant for lung health? An overview

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ABSTRACT

Long-term exposure to road traffic and other transport-related noise (railroad, aircraft) have been convincingly linked to increased risk of major cardiovascular diseases, stroke, as well as type 2 diabetes. More recent evidence suggests also a role of noise in the development of dementia. Exposure to environmental noise during night and related sleep disorders as well as stress response related to annoyance from exposure to daytime noise, present pathophysiological mechanisms that are clearly relevant for cardiometabolic and neurodegenerative diseases. However, these noise-induced responses may also be relevant for lung health and lead to increased risk of the development of respiratory diseases. For example, noise-related reduced sleep and sleep disturbance, may lead to worsen lifestyle (reduced physical activity, higher risk of overweight and obesity and smoking), which in turn may increase risk of asthma or chronic obstructive pulmonary disease (COPD). Few epidemiological studies have suggested role of noise for COPD. Still, associations between noise and respiratory health remain largely unexplored. Here, we will provide an overview over epidemiological literature on the association between long-term exposure to environmental noise and risk of respiratory diseases, in children and adults. We will present results of a systematic review of literature of epidemiological studies that have examined associations between transport-related environmental noise and risk of following respiratory outcomes: respiratory mortality, and morbidity (incidence): asthma in children, acute lower respiratory infections (ALRIs) in children, adult-onset asthma, COPD, ALRIs in adults.

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