

EFFECTS OF EXPOSURE TO DUST AND EXHAUST FUMES ON LUNG FUNCTIONS OF ROAD WORKERS - PRELIMINARY RESULTS

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Background: Occupational Lung Diseases (OLD) have gained world wide attention with the expeditious industrial development. Deterioration of lung functions and permanent alteration of lung structure can occur due to occupational exposure to dust and noxious substances. Road workers have a very high risk of acquiring occupational lung disease due to exposure to dust and vehicle exhaust fumes.

Methods: This cross sectional descriptive study was with the aim of comparing lung functions of road workers (n=50) with non-exposed controls (n=27). Fifty employees of the Road Development Authority allocated to a road construction site in Battaramulla were recruited and an interviewer administered questionnaire was used for preliminary data collection. Anthropometric measurements were obtained according to standard measures and lung functions were assessed by spirometry. Data was analyzed using SPSS v23.0.

Results: The mean (+/- SD) age of road workers was 44.2+/-7.3 and controls was 37.1+/-9.2. Road workers had a mean height of 165.9+/-8.1cm whereas controls had 170.7+/-6.5cm ($p > 0.05$) and the mean weights were 62.6+/-11.1kg and 67.5+/-10.6kg respectively ($p > 0.05$). The mean Forced Vital Capacity (FVC) in road workers was significantly decreased when compared to controls (3.2+/-0.7L vs 3.6+/-0.5; $p < 0.05$). Similarly, Forced Expiratory Volume in the first second (FEV1) was lower in road workers but the difference was not statistically significant (2.7+/- 0.6 vs 2.9+/-0.5; $p = 0.134$). The road workers had a FEV1/FVC ratio of 82.4+/-6.7% whereas the controls had 80.1+/-7.5% and the difference was not statistically significant ($p = 0.220$).

Conclusions: The preliminary results show that road workers exposed to dust and exhaust fumes show early changes of restrictive airway disease compatible with OLD. Thus we recommend the use of face masks with special particle size filters as used in developed countries to protect the road workers.