

## SHC 14. CORRELATION OF LUNG DYSFUNCTION AND SERUM CADMIUM AND LEAD LEVELS AMONG WELDERS

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Welding is an industrial process that materials are joined by fusion. The health hazards related to welding are well discussed and the toxic effects of welding to the lungs are already known. But the effects of heavy metals exposure during welding on the lungs are currently equivocal. In this study we investigated the association between lead and cadmium levels and pulmonary function among welders.

This is a descriptive study. Two hundred seven non-smoker male participants included controls and welders who presented Ankara Occupational Disease Hospital for annual medical examination were included to the study. Three groups were classified; which 61 of them were controls, 96 of them were exposed workers, working less than 4 hours a day and 50 of the participants were exposed workers, working more than 4 hours a day. Existence of recent acute or chronic diseases, having medications and smoking used for exclusion. We assessed symptoms, performed spirometry, measured serum Cd and lead levels in all study subjects. Also we tested the association between serum Cd and lead levels and lung function using multiple regression analysis.

FVC and FEV1 increased and FEV1/FVC decreased in welders who were exposed to metal fumes less than 4 hours a day ( $p < 0.0001$ ). The group whom exposed more than 4 hours had increased FVC levels and decreased FEV1 and FEV1/FVC levels ( $p < 0.0001$ ). Blood cadmium and blood lead levels increased in both groups with exposure to welding fumes ( $p < 0.0001$ ).

Participants who were exposed above 4 hours a day had significantly decreased FVC, FEV1, FEV1/FVC, PEF values ( $p < 0.0001$ ). All parameters (FVC, FEV1, FEV1/FVC, PEF) were decreased in participants with high blood cadmium levels and the difference is statistically significant ( $p < 0.0001$ ).

This present study clearly shows that pulmonary functions are associated with exposures during welding. The increased working hours are correlated with impairment in pulmonary functions. So this study reveals the clues of systemic toxicity associated with welding and the detrimental effects to the lungs which our findings supports the hypothesis.

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