21 WELDING, LUNG FUNCTION DECLINE AND RESPIRATORY SYMPTOMS: A SYSTEMATIC REVIEW OF COHORT STUDIES

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Objectives While the acute health risks of welding are well understood and largely controlled, more chronic adverse effects - including those on lung function - are less clear. We carried out a systematic review of published longitudinal studies of lung function decline in welders.

Methods Through a search of electronic and bibliographic sources we reviewed and performed meta-analyses of original cohort studies (n=7, 892 welders) documenting two or more sequential measurements of lung function. The median duration of follow up was 5 years (range 2–18 years).

Results Reported FEV_1 decline varied from -43.9 to -0.05 ml/year with a pooled estimate for all welders of -23.8 ml/year (95% CI -45.9 to -1.7). This was greater than in controls for whom the pooled estimate from five studies was -16.3 ml/year (95% CI: -30.6 to -2.0). Five of the eight studies analysed decline by smoking status: the pooled estimate for smoking welders was -34.6 ml/year (95% CI -59.0 to -10.2) and for non-smoking welders was -15.9 ml/year (95% CI -31.8 to 0.1). Equivalent estimates stratified by smoking for available control data were -17.3 ml/year (95% CI -34.0 to -0.6) and -14.0 ml/year (95% CI -32.5 to 4.5) for smokers and non-smokers respectively.

Conclusions Collectively, the available longitudinal data on decline of lung function in welders suggest a small effect that may be confined to those who smoke; they support a strong focus on smoking cessation. Further prospective studies are required to establish this finding. Epidemiologists with an interest in welding should consider a collaborative and carefully standardised longitudinal study of lung function in welding.