

## Prevalence Of Respiratory And Eye Symptoms Among Welders And Association With Different Welding Techniques

**A. Banga<sup>1</sup>, M. Reilly<sup>1</sup>, K. Rosenman<sup>1</sup>**

<sup>1</sup>Michigan State University, East Lansing, United States of America

**Corresponding author's email: amit.banga@ht.msu.edu**

### Introduction

Welding is a common work task known to be associated with respiratory and allergic disorders. All types of welding may not have equal adverse health effects. We assessed upper and lower respiratory and eye symptoms among welders doing different forms of welding.

### Methods

A questionnaire based cross-sectional study was conducted from 2002-04 among welders (n=720, age 38.6±10.5; M: F 593:127) across 71 companies located in Michigan. Data regarding the demographics, job duration, type of welding, past and family history of allergy as well as current respiratory and eye symptoms was recorded. Subjects had to choose the frequency of current symptoms bothering them at work from 'never', 'seldom', 'monthly', 'weekly' and 'daily'. Symptom frequency of monthly or more was considered clinically significant.

### Results

The majority of the subjects were Caucasians (n=471, 65.4%). Subjects had been in the current job for a median time of 2 years (range <1 to 34 years). Among the different welding techniques, most subjects did arc welding (n=471, 65.4%; 35.9±14 hours/week) followed by resistance welding (n=189, 26.3%; 33.3±16.8 hours/week) and cutting (n=179; 24.9%). The majority of subjects had a history of smoking (n=448, 62.2%). Among the work-related health symptoms, nasal stuffiness (30.2%) and runny nose (22.1%) were the most frequent. Eye symptoms (tearing and redness of eyes) were also common (17.6% and 14.4% respectively). Among the respiratory symptoms, cough (17.5%) was the most common followed by shortness of breath (11.6%), wheezing (11.3%) and chest tightness (10.2%). After adjusting for age, gender, race, smoking, past history of atopy, family history of allergies and exposure to other forms of welding, arc welding was independently associated with wheezing (adjusted OR, 95% CI: 2.81, 1.18-6.66; P=0.019), redness of eyes (adjusted OR, 95% CI: 4.22, 1.72-10.37; P=0.002) and tearing (adjusted OR, 95% CI: 3.1, 1.51-6.35; P=0.002). Further, resistance welding was independently associated with nasal stuffiness (adjusted OR, 95% CI: 2.19, 1.26-3.83; P=0.006) and runny nose (adjusted OR, 95% CI: 1.95, 1.07-3.56; P=0.03).

### Conclusions

There is a significant burden of work-related upper and lower respiratory and eye related symptoms among welders. Working on arc welding independently increased the risk of lower respiratory and eye symptoms whereas resistance welding increased the risk of nasal symptoms.

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