THE HEALTH EFFECTS RELATED TO SOME PHYSICAL ENVIRONMENTAL CONDITIONS IN AN IRON FOUNDRY AND A STEEL FOUNDRY

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159 workers comprising of 82 iron foundry wokers and 77 steel foundry workers were studied with a view to identifying health effects related to factors in the physical environment.

On questioning about the perception of the occupational environment, over 50% of the workers stated the thermal environment as unbearably hot, the sound as interfering with communication (only in the steel foundry) and the illuminance as satisfactory.

The discomforts and defects of the workers were intense sweating, burns, fatigue, defective vision and headache. Intense sweating ($p < 0.05$) and burns ($p < 0.0001$) were significantly higher among the iron foundry workers than in the steel foundry workers. Sneezing ($p < 0.01$) and cough ($p < 0.05$) were significantly higher among the steel foundry workers.

The environmental heat stress index (WBGT) exceeded the recommended standard in both foundries. However, the workers' physiological response to heat in pulse rate and body temperature did not show significant changes.

Mean hearing levels at 4000 Hz, were significantly increased with service in the steel foundry workers but not in the iron foundry workers.

A significantly higher prevalence of corneal opacities ($p < 0.05$) and lens opacities ($p < 0.001$)were observed among iron foundry workers than in the steel foundry workers.

These differences in the two groups of foundry workers could be attributed to the different types of metal casting and furnaces used.

(This study was funded by the World Health Organization)

References:

Dukes - Dobos, K.N. (1981). Hazards of heat exposure. Scand. J. Work Environ. Health 7: 73-83.