



## Hazards associated with foundry processes: Hand-arm vibration - the current picture

Foundries Sheet No 8

### Introduction

This information sheet was produced by HSE's Molten Metals National Interest Group in conjunction with the Foundries Industry Advisory Committee (FIAC) through its sub-committee on noise and vibration. It is one of a series on hand-arm vibration (HAV), produced as part of FIAC's vibration strategy (see Further information from HSE Books) and outlines the current position in the foundry industry with regard to the hazards from HAV. It is aimed at employers, employees, and their representatives.

### Awareness of hand-arm vibration syndrome

Hand-arm vibration syndrome (HAVS) is a group of diseases caused by exposure of the hands to vibration. The best known of these is 'vibration white finger' (VWF) which is caused by the effects of vibration on the body's blood circulation.

Other damage may be caused to the nerves and muscles of the fingers and hands causing numbness and tingling, reduced grip strength and sensitivity. 'Carpal tunnel syndrome' is an example of this and is caused by compression of nerves in the wrist. Pain and stiffness in the hands, and joints of the wrists, elbows and shoulders are other possible symptoms (see Further reading for more details on HAVS).

HAVS is a reportable disease under the Reporting of Injuries, Diseases and Dangerous Occurrences (RIDDOR) Regulations 1995 (see Further reading).

The risk of suffering from HAVS depends on both:

- the level of vibration to which the individual is exposed; and
- the time of exposure both in terms of hours per day and years of work.

Although in many cases symptoms may take several years to develop, they may appear after only a few months in susceptible people who are exposed to high levels of vibration.

HAVS is most common in the foundry industry among fettlers.



### Scale of the problem

An HSE study in 1986 found that around 19 000 British molten metal workers were at risk from exposure to hand-arm vibration, and for 10 000 of these the risk was high.<sup>1</sup> It is estimated that around half of these were employed in the foundry industry. HSE is currently sponsoring a project to obtain up-to-date details of numbers exposed.

A recent HSE study<sup>2</sup> found VWF in 25% of a group of fettlers; a further 11% showed other symptoms of HAVS.

This was a limited study and the figures probably represent the better end of the industry. Other studies<sup>3</sup> suggest that around half of all foundry workers exposed to HAV show symptoms of VWF.

### Costs of HAVS

VWF is a prescribed industrial disease. Fourteen hundred new cases were assessed by the DSS in 1993/4 although a total of only 1100 were in receipt of benefit payment in April 1994.<sup>4</sup> It is thought that there are around 12 000 sufferers of VWF in Britain who are currently employed.<sup>5</sup>

Carpal tunnel syndrome, caused by hand-held vibrating tools, has also been the subject of compensation claims and around 200 cases were paid out in 1993/4.<sup>4</sup>

Sufferers will often make a claim for compensation from their employers, and settlements are generally around £2000 (HSE estimate) although sums in excess of £50 000 have been paid out.

Agreements between certain unions and insurance companies mean that large numbers of claims are settled out of court on an agreed monetary scale where an average payment is £1200 (HSE estimate).

Survey findings suggest that 20% of VWF sufferers took sick leave because of their condition, each taking an annual average of 12 days.<sup>5</sup>

Costs to employers go beyond this to include costs associated with absence such as extra administration, recruiting replacement staff, and higher insurance premiums (see Further reading ).

### FIAC vibration strategy

HSE recently conducted a major Health Risk Review which highlighted ten main risks to health at work. One risk identified was that arising from vibration and HSE recommended that strategies for vibration risk reduction be drawn up. FIAC has drawn up a vibration strategy in response to this.

The 1996-98 FIAC strategy for HAV reduction focuses on:

- stimulating the improved management of vibration-related health risks by raising the awareness of employers and employees to the risks and changing their attitudes;
- developing guidance for small foundries on the maintenance and use of current equipment;
- the reduction of vibration through the purchase and use of new, low-vibration machinery and equipment; and
- ultimately, the introduction of alternative production methods to reduce, if not eliminate, the exposure to harmful hand-arm vibration.

### References

- 1 Kyriakides K Survey of exposure to hand-arm vibration in Great Britain Research Paper 26 HSE 1988 (Out of print)
- 2 Bednall A W and Pitts P 'Exposure to hand-arm vibration in foundries' Foundry Trade Journal March 1996

3 Griffin M J Human vibration Academic Press ISBN 0 12 303040 4

4 HSC Annual Report 1994/5 - Statistical Supplement HSE Books ISBN 0 7176 1019 5

5 Hodgson J, Jones J, Elliott R and Osman J Self-reported work-related illness Research paper 33 RP 33 HSE Books ISBN 0 7176 0607 4

### Further reading from HSE Books

Hazards associated with foundry processes: Hand-arm vibration - symptoms and solutions FNIS 9 (free)

Hand-arm vibration HS(G)88 ISBN 0 7176 0743 7

Everyone's guide to RIDDOR 95 HSE 31 (single copies free; also available in priced packs of 10, price £5, ISBN 0 7176 1077 2)

The costs of accidents at work HS(G)96 ISBN 0 7176 0439 X

Hand-arm vibration: Advice on vibration white finger for employees and the self-employed IND(G)126L (free)

Hand-arm vibration: Advice for employers IND(G)175L (free)

HSE priced and free publications are available by mail order from:

HSE Books, PO Box 1999, Sudbury, Suffolk CO10 6FS  
Tel: 01787 881165 Fax: 01787 313995

HSE priced publications are also available from good booksellers.

For other enquiries ring HSE's InfoLine Tel: 0541 545500 or write to HSE's Information Centre, Broad Lane, Sheffield S3 7HQ

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