University of Sussex
Health, Safety & Wellbeing Office

Hand-Arm Vibration Safety Policy

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University of Sussex

Hand-Arm Vibration Policy

Contents

1. Introduction and Scope

1.1 The Control of Vibration at Work Regulations 2005 (the Vibration Regulations), came into force on 6 July 2005 and aim to protect workers from risks to health from vibration. It is the policy of the University to put in place measures to protect employees, and others who may be exposed, from the risks of hand-arm vibration syndrome and to comply with the Control of Vibration at Work Regulations 2005, the Management of Health and Safety Regulations 1999 and the Health and Safety at Work etc Act 1974.

1.2 This policy aims to highlight those work activities that have the potential to cause hand-arm vibration syndrome, give information on identifying the level of risk associated with such activities and to suggest ways of reducing any significant risks to an acceptable level.

2. Purpose

2.1 This policy applies to all University employees and any person who may be affected by work conducted by the University. This includes students, visitors, contractors and the general public.

2.2 This document is most likely to be relevant to University machinery workshops for any relevant schools and associated academic activities and the Estates and Facilities Managements' Direct Services Unit. Generally, it is anticipated that the level of risk is not high because of the nature of the work taking place i.e. vibration exposure is not prolonged and is frequently interrupted.

3. Definitions

3.1 Hand-Arm Vibration Syndrome or HAVS is a condition that has the potential to affect any worker who uses powered hand-held or hand-guided tools as a major part of their job. Workers whose hands are regularly exposed to high vibration may suffer from several kinds of effects to the hands and arm, including impaired blood circulation and damage to the nerves and muscles. It is felt as a tingling or numbness in the fingers or where finger blanching occurs. There are other names for the condition: 'vibration white finger', 'dead finger' and Secondary Raynaud's Syndrome.

3.2 The affects are cumulative and as time passes the attacks may involve considerable pain and loss of manual dexterity, resulting in clumsiness and reduced grip strength. In severe cases, blood circulation may be permanently impaired and fingers may take on a blue-black appearance.

3.3 As indicated above, the primary cause of HAVS is work involving holding vibrating tools or work equipment. The risk depends on the magnitude of the vibration and how long an individual is exposed to it. Other aspects that can have an affect are the grip, push and other forces used to guide and apply vibrating tools or work equipment, the pattern of exposure, how much of the hand is exposed to the vibration, temperature, smoking and individual susceptibility.

4. Responsibilities

4.1 The University will:

4.1.1 Ensure that employees and workers (staff at work and students attending lectures and practical sessions) are not exposed to hazardous levels of hand-arm vibration.
4.1.2 Keep up with good practice and relevant higher education sector and industry standards for vibration control
4.1.3 Encourage continuous improvement.

4.2 Heads of Schools and Directors must:

4.2.1. Ensure that vibration hazards are taken into account in risk assessments and reviews for relevant activities. Formal assessment of the risk to health is required where vibration levels exceed the lower exposure action value.

4.2.2 If the Exposure Action Value (EAV) 2.5m/s2 is likely to be exceeded

- Reduce exposure to the lowest practicable level
- Provide health surveillance (this is available through Occupational Health)

4.2.3 The Exposure Limit Value (ELV) 5m/s2

- Ensure employees are not exposed above the ELV
- If they are, take immediate action to prevent recurrence

4.2.4 Consider alternative processes, equipment and/or working methods which will make the reduce exposure or mean people are exposed for shorter times.

4.2.5 Consider vibration levels when purchasing new equipment, and where possible specify and purchase equipment with reduced levels of vibration.

4.2.6 Have planned preventative maintenance arrangements that ensure equipment continues to operate properly and does not increase in vibration over time.

4.2.7 Arrange a vibration survey if there are concerns about vibration levels in equipment used.

4.2.8 Refer employees to the Occupational Health Service for health surveillance if they are likely to be regularly exposed above the Exposure Action Values, or are at risk for any reason e.g. they already suffer from HAV or are particularly sensitive to damage.

4.3 The Health, Safety & Wellbeing Office will:

4.3.1 Assist Heads of Schools or Directors arrange a vibration survey if problems are reported; keep records of surveys undertaken.

4.3.2 Provide survey findings to the relevant Head of the School/Director and provide advice on any necessary remedial actions.

4.4 Occupational Health Service will:

4.4.1 Arrange for appropriate health surveillance of relevant employees.

4.5 Staff must:

4.5.1 Report any suspect equipment or symptoms to their line manager so that appropriate steps can be taken.

4.5.2 Attend health surveillance if requested to do so by the Occupational Health Service.

5. Details of procedure/operational details

5.1 Potential sources of high vibration at the University

The following is an indicative list of the types of equipment found in the University that may present a vibration hazard:

- Grounds work, e.g. chainsaws, strimmers, mowers, blowers, hedge trimmers, etc.
- Workshop equipment, e.g. grinding tools, rotary burring tools, powered hammers, concrete breakers, sanders and drills
- Grinders and other rotary tools
- Timber and wood machining tools
- Percussive metal-working tools
- Percussive tools used in stoneworking, quarrying, construction

5.2 Exposure Limits

5.2.1 The Regulations define two types of exposure limit.

The **Exposure Action Value** (EAV) is the level of daily exposure to vibration, which if exceeded requires certain actions to reduce exposure.

The **Exposure Limit Value** (ELV) is the maximum amount of vibration an employee may be exposed to on any single day.

5.2.2 The vibration level produced by equipment is usually assessed by measuring the acceleration level in m/s2. The Regulations set an Exposure Action Value (EAV) of 2.5m/s2 over 8 hours (A8) and an Exposure Limit Value (ELV) of 5m/s2 over 8 hours (A8).

5.2.3 It is the aim of the University to minimise the risk of HAVS to staff by keeping exposure to vibration as low as is reasonably practicable and where the 2.5m/s2 is exceeded, control measures will be put in place to reduce it.

5.2.4 The vibration dose received by the worker over a typical working day depends on the duration of exposure as well as the vibration magnitude.

5.2.5 To allow different exposure patterns to be compared they are adjusted or normalised to a standard reference period of 8 hours, similar to the approach taken for noise levels. The Control of Vibration at Work Regulations 2005 describe how an exposure normalised to 8 hours, A(8), can be calculated. The table below gives the average vibration levels over a working day and the times to reach the exposure levels.

Vibration Magnitude (m/s2)	2.5	3.5	5	7	10	14	20
Time to reach Exposure Action Value (in hrs)	8	4	2	1	½	¼	8 mins
Time to reach Exposure Limit Value (in hrs)	>24	16	8	4	2	1	½

Exposure Action Value = 2.5m/s2 per 8hr working day

Exposure Limit Value = 5m/s2 per 8hr working day

The following table lists some indicative vibration levels for typical equipment.

Examples of Equipment	Typical Vibration Levels (in m/s2)
Hedgecutter	6.3
Flymo mower	3.0
Chainsaw	3.5-5.5
Blower (hand-held)	7.5
Kango hammer	4-15 (depending on power/size)

For example, a hand held blower with a vibration level of 7 m/s2 would result in exposure of the operator to the equivalent of the EAV in just one hour, hence typical use greater than this would require reasonably practicable exposure reduction measures to be taken. If this was used for 4 hours a day the ELV would be exceeded and no further use would be permitted.

5.2.6 Generally at the University, the nature of the work lessens the risk. For instance, work may be seasonal or related to particular projects, exposure is normally not prolonged on a regular basis. University workshops tend not to be operated in the same way as industrial environments so individuals are not continuously carrying out repetitive high-vibration tasks on a daily basis. There is still a need to assess each situation.

5.2.7 However, the diversity of work that an individual may be involved in can cause difficulty in accurately assessing exposure because a number of different tools are being used in any one day for variable lengths of time. It should be possible to estimate a cumulative exposure by summing up the typical exposure pattern from the range of equipment used.

5.3 To identify the extent of the problem:

1. Identify the equipment that vibrates and find out about the levels of vibration - information should be available from suppliers/manufacturers (they have a duty to supply it). Staff are likely to have a subjective opinion from using the equipment. Consider vibration monitoring (see below).
2. Rank equipment in terms of hazard contribution, i.e. the level of vibration and how much they are used.
3. Discuss with staff whether they have noticed any particular problems with certain types of equipment or individual machines.
4. Check the workload of individuals who use vibration tools and at least estimate the exposure they may be receiving.

5.4 To reduce the risk:

1. Provide information, instruction and guidance (see below)
2. Check whether it is necessary to use the current types of tool or whether a task may be achieved a different way.
3. Minimise the need for operations and tools that expose workers to hazardous vibration.
4. Minimise the forces needed to control tools.
5. Consider the maintenance of the equipment and whether there is likely to be deterioration in anti-vibration mountings, etc. Ageing and/or poorly maintained equipment is likely to give worse levels of vibration.
6. Reduce exposure times, e.g. by breaking up activities to minimise prolonged exposure.
7. It is important that operators are able to maintain good blood circulation, gloves can be helpful although alone, they are not the solution to a vibration problem.
8. Heated handles, warm, weatherproof clothing, heating pads are amongst the other aids that can be considered.
9. Further suggestions on how risk reduction may be achieved are given in the publications listed on .?

5.5 Equipment with high levels of vibration

If it is found that there are items of equipment with high vibration levels (greatly exceeding 2.5m/s2), action is required to reduce this. The solution might include:

- Purchase of different/new equipment,
- Improved maintenance/servicing,
- Using the equipment for shorter periods of time and
- Information to staff on how to minimise the risks.

6.0 Health Surveillance

6.1 If there is a significant risk of HAVS, i.e. where an individual's vibration exposure exceeds 2.5m/s2, then a health surveillance programme via the University's Occupational Health Provider must be arranged. The aim of this is to identify at an early stage any member of staff who may be showing medical signs of developing HAVS. If at any time between the routine checks, a member of staff notices any of the signs of HAVS, they should report it to their line manager in order that referral to Occupational Health can be organised and investigation of the equipment carried out by the School/Department.

7.0 Training

7.1 Members of a School/Service Department at risk of HAVS must be provided with adequate information. This should include the following:

- information on vibration levels relevant to the machinery they are to use, particularly identifying pieces of equipment that are known to have higher vibration levels,
- the need to interrupt work using vibrating machinery on a regular basis with other tasks and or to divide such work with other colleagues,
- to be aware of other factors that can increase the likelihood of HAVS such as low temperature, smoking

8. Monitoring

8.1 This policy will be monitored by the University's Health, Safety & Environment Committee. This will be done through a number of indicators:

- incident and accident statistics
- RIDDOR incidents reported to the HSE
- legal action / claims data
- sickness absence data
- Occupational Health data on health surveillance
- Inspection and audit
- Monitoring planned preventative maintenance regimes

8.2 Heads of Schools and Directors will monitor risk assessments and control measures through their Health & Safety Committees. Any problems highlighted should be brought to the attention of

the University's Health, Safety and Wellbeing Office who will then inform the Health, Safety & Environment Committee.

9. References/Related Documents

The HSE publish a leaflet on HAVS which is a good general information source for employees.

Reference IND(G) (rev1) 126L Health risks from hand-arm vibration for employees and the self-employed (HSE 2002) http://www.hse.gov.uk/pubns/indg296.htm

Management of Health and Safety at Work Regulations 1999
The Control of Vibration at Work Regulations 2005
Hand-arm vibration at work: A brief guide http://www.hse.gov.uk/pubns/indg175.htm