St Mary's University Twickenham London

Hand Arm Vibration at Work
HSPG 25

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Policy on the Control of Hand Arm Vibration at Work

1. Statement of Policy

St Mary's University will put in place measures to protect employees from the risks of Hand Arm Vibration Syndrome (HAVS), which can be caused by exposure to vibration.
Under the regulations, these measures will include:

a) Assessing the risks from vibration exposure
b) Taking steps to reduce vibration exposure
c) Taking into account vibration risks when purchasing or hiring equipment
d) Providing training and information for employees on the risks from vibration and the measures in place to reduce these
e) Consulting trade union safety representatives or employee representatives on proposals to control risk and to provide health surveillance
f) Keeping a record of the risk assessment and control actions
g) Providing health surveillance where the risk assessment shows that this is appropriate.
h) Keeping health records for employees under health surveillance
i) Review and update the risk assessment regularly.

This will enable the University to satisfy its obligations under the Control of Vibration at Work Regulations (2005) and the Management of Health and Safety at Work regulations (1999).

Vibration affects the human body either through the hands and arms - Hand Arm Vibration (HAV) or through the legs and buttocks - Whole Body Vibration (WBV). The health effects of HAV are the more common, and contact with vibration in the frequency range 40-250 Hz may cause contraction of the blood vessels exposed to the vibration, as well as secondary tissue changes to bones, nerves and the musculature. This can cause impaired sensation and eventually persistent pain.

This policy does not cover the risks arising from Whole Body Vibration, which also arise from the above regulations.

2. Procedures and Guidance

a) Exposure Action Value and Exposure Limit Value

Vibration is the rapid acceleration and deceleration of a body or body part, produced by rotating or oscillating machinery. When this movement is transmitted to the human body – usually through the hands, arms, feet or buttocks – it has the potential to cause injury.

Vibration is measured in 3 axes – the 'x' axis is front to back, the 'y' axis is left to right, and the 'z' axis is up and down in the vertical plane. The acceleration in each of the planes is measured, and gives a reading in m/s^2.

An accelerometer (equipment for measuring the rate of acceleration) is used to measure the vibration on each of the three axes, and calculate the value. This data has to be adjusted to give the equivalent value of exposure to vibration over a normalised 8-hour day. This is expressed as units of m/s^2 (8hr).

Exposure Action Value – 2.5 m/s^2 A(8) (exposure averaged over a day)
(EAV)

The Exposure Action Value (EAV) is a daily amount of vibration exposure above which employers are required to take action to control exposure. The greater the exposure level, the higher the risk and the more action employers will need to take to reduce the risk. For hand-arm vibration the EAV is a daily exposure of 2.5 m/s^2 A(8).

Wherever exposure at or above this level occurs, actions (including health surveillance) are required to control the risk.

Exposure Limit Value – 5 m/s^2 A(8) (exposure averaged over a day)
(ELV)

The Exposure Limit Value (ELV) is the maximum amount of vibration an employee may be exposed to on any single day. For hand-arm vibration the ELV is a daily exposure of 5 m/s^2 A(8). It represents a high risk above which the employees should not be exposed.

This is the maximum vibration exposure permitted for any individual on a single day.

b) The Supply of Machinery (Safety) Regulations 1992 (as amended) and the Provision and Use of Work Equipment Regulations 1998

This legislation imposes duties on the manufacturers of equipment, and also on the employer whose workers use the equipment. The manufacturer must:-

- design and construct equipment which will cause the minimum vibration injury
- provide purchasers with warnings of any residual risk
- provide information on vibration levels
- provide instructions in how to use the equipment to avoid risk of vibration injury.

c) Risk Assessment

Vibration risk assessment is required if employees work with, for example, hand held tools (e.g. drills, breakers, sanders, chain saws, hedge trimmers); hand guided tools (such as pedestrian lawn mowers, buffers) or materials held against a vibrating object (e.g. use of a grinder, timber being guided through a band saw).

Risk Assessment requires: ·

- assessment of the vibration magnitude from each piece of equipment used. This may be provided by the manufacturer: however, manufacturers' data will often come from testing

under specific controlled conditions which are very different from normal working practices and therefore may significantly underestimate exposures in practice. Alternate sources of data may be found from websites which have measured vibration levels of equipment in real use.

- measurement of vibration levels where published data is not available, and there is reason to believe that individual exposure is potentially close to the ELV;
- identification of who might be affected;
- calculation of vibration exposure for individuals, taking into account equipment used and length of time in use ('trigger time'). The Health and Safety Executive have produced a 'calculator' which will enable conversion of working times and vibration magnitudes into an overall exposure factor. It will also enable the summation of exposures if more than one piece of equipment is used;
  https://www.hse.gov.uk/vibration/hav/calculator-guide.htm
- identification of other risk factors, for example work in cold or wet environments increases the health risks from vibration exposure.
- consideration of individual factors. For example, the presence of some health conditions may increase risk from vibration exposure; the way some employees use equipment (posture, technique) may increase their vibration exposure from a particular activity by up to 50% compared to colleagues.

The risk assessment should include an action plan which documents the measures already in place to reduce the risk from vibration exposure and any further measures planned.

The vibration risk assessment can be a standalone document or can be incorporated into the overall risk assessment document for a department or process where this is more appropriate.

The risk assessment should be reviewed if there is any change in vibration exposure; and at least every year otherwise.

d) Reducing Risk from Vibration Exposure

Measures should be put in place to reduce vibration exposure to as low a level as is reasonably practicable – even if vibration levels are below the Exposure Action Value (EAV), consideration should be given as to whether further reduction is practical.

Wherever vibration levels may exceed the EAV, assistance should be sought from the Health, and Safety Office to assist with risk assessment and reduction of vibration exposure.

Personal vibration exposure MUST NOT exceed the Exposure Limit Value (ELV) of 5m/s^2). The only exception to this is for occasional (e.g. emergency work) where the ELV is exceeded on one day, but is at or close to zero for the rest of the week; or where equipment is purchased prior to July 2007, and exposure cannot possibly be reduced below that level in which case there is a transitional arrangement in place until July 2010. In this scenario, there is still an obligation to reduce exposure so far as is reasonably practicable, and to keep under regular review.

Ideally, it is best to eliminate vibration exposure wherever possible, or deal with the source of vibration. Realistically however, complete elimination of vibration is often not possible and so the following control measures may be employed:-

- look for alternative methods of working – automaton, jigs and fixtures to hold the work etc
- use tool supports – anti-vibration mounts, tensioners, balancers etc
- maintain tools and equipment – replace mounts regularly, ensure tools are correctly balanced, keep tools sharp
- replace tools and equipment with alternatives which produce lower magnitudes of vibration
- design the task to avoid poor posture – avoid strain on hands and arms and ensure work activities take into account ergonomic principles
- reduce the time exposed to vibration e.g. regular breaks, job rotation etc
- introduce a purchasing policy specifying low vibration tools and equipment
- conduct regular health surveillance, including monitoring of vibration exposure, then act on the results
- use appropriate Personal Protective Equipment (PPE), particularly if used in damp or cold conditions. Change gloves if they become damp or wet, as keeping the hands and arms warm is an important preventative measure
- implement a training programme to ensure that workers understand why the task is designed as it is, what PPE to use, and to report any symptoms of HAV immediately
- reduce exposure duration by implementing work breaks, job rotation etc.

e) Health Surveillance

Exposure to vibration carries a risk of health effects, this is most likely with exposure above the EAV of 2.5 m/s^2, but may occur at lower exposures.

As discussed previously, Hand Arm Vibration Syndrome (HAVS) covers a number of different conditions; one or more may be present in an affected individual.

- Vascular disorders (affecting circulation) – commonly 'blanching' of the fingers (especially on exposure to cold or to vibration), often followed by blueness/redness as rewarming occurs
- Neurological disorders – including numbness, tingling of the fingers, reduced strength, reduced sensitivity and loss of dexterity
- Musculoskeletal symptoms such as joint pain and stiffness, reduced strength and dexterity and carpal tunnel syndrome

Symptom severity worsens with continued exposure and may be disabling and irreversible.

Hand Arm Vibration Syndrome and Carpal Tunnel Syndrome are notifiable conditions under the Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 1995 (RIDDOR). An employer must report cases to the relevant enforcing authority as they become aware of them either through health surveillance or other methods.

Health surveillance must be carried out for employees who are regularly exposed to vibration above the exposure action value (2.5. m/s^2)

Health surveillance will also be offered to those exposed below the EAV if they are at increased risk e.g. if they report a pre-existing diagnosis of HAVS or any other condition of the hands,

arms, wrists or shoulders, or any condition which affects circulation or nerve conduction such as diabetes, carpal tunnel syndrome etc.

Health surveillance will involve:

- Initial assessment. This will be carried out for all employees who are identified as being at risk of exposure even if exposure is likely to be below the EAV of 2.5 m/s2. For existing employees, assessment will be carried out once initial risk assessment indicates that this is required. For new employees, this will be carried out at the time of general pre-employment health assessment. It is important that the recruiting officer identifies the need for this as part of the job risk assessment carried out at the time of interview.
- Annual assessment. This will usually be by questionnaire
- Face to face review. This will be arranged if a questionnaire reveals symptoms; if an individual reports symptoms between health surveillance questionnaires; or every 3 years otherwise.

Health surveillance will be carried out by Occupational Health. All individual records will be held in confidence. Where appropriate, summary results for groups of employees will be reported back to a manager to indicate the effectiveness of vibration control.

f) Training and information

All employees who are exposed to vibration should be given training to include:·

- The health effects of hand arm vibration;
- Sources of hand arm vibration;
- Whether they are at risk, and if so whether the risk is high (above the ELV), medium (above the EAV) or low;
- The risk factors (e.g. the levels of vibration, daily exposure duration, regularity of exposure over weeks, months and years);
- How to recognise and report symptoms;
- The need for health surveillance, how it can help them remain fit for work, how you plan to provide it, how you plan to use the results and the confidentiality of the results;
- Ways to minimise risk including:
    - Changes to working practices to reduce vibration exposure;
    - Correct selection, use and maintenance of equipment;
    - Correct techniques for equipment use, how to reduce grip force etc;
    - Maintenance of good blood circulation at work by keeping warm and massaging fingers and, if possible, cutting down on smoking.

Where new staff are employed, they should be made aware of the risks of vibration prior to first exposure, or at least within the first week of employment.

In addition, all employees should be given appropriate training in the use of equipment. This should include periodic supervised practice to identify work practices which may increase risk such as poor postures, gripping equipment too tightly etc.

3. Responsibilities

a) Head of Faculty / Department;

- Nominate a person(s) (usually the Faculty / Departmental Health and Safety Coordinator) to implement the vibration regulations within the Faculty / department or section, and ensure they have the necessary skills and competence.
- Support the nominated person(s) in implementing measures to comply with the vibration regulations
- Ensure all managers and employees within the Faculty / Department discharge their responsibilities in accordance with this policy.

b) Managers and Supervisors;

- Understand the scope and content of the Vibration regulations where this is relevant to work in their area
- Ensure vibration factors are taken into account when hiring or purchasing new equipment
- Ensure that necessary vibration risk assessments have been undertaken for any equipment used by those in their charge
- Implement and enforce vibration control measures, in conjunction with the area co-ordinator
- Ensure employees are suitably trained in all aspects of operating equipment, including vibration control

c) Health and Safety Coordinator (or other nominated person)

- Understand the scope and content of the vibration regulations
- Identify whether risk assessment is required within the department
- Ensure vibration factors are taken into consideration when purchasing new equipment
- Work with the Health and Safety Officer to
    - Carry out vibration risk assessment if required.
    - Implement vibration control measures where appropriate.
    - Identify where health surveillance is required, and inform Occupational Health.
    - Provide training and information for those who may be exposed to vibration.

d) Employee

- Use all equipment in accordance with instruction.
- Ensure all equipment is well maintained.
- Report any defects or difficulties with vibrating equipment.
- Cooperate with any programme of health surveillance which is identified as necessary following risk assessment.

e) Health Safety Officer

When requested by the Faculty / Departmental Manager or equivalent

- Assist with vibration risk assessment.
- Carry out/arrange vibration measurement where appropriate.
- Advise on vibration control measures.
- Advise whether health surveillance is appropriate.
- Arrange training for nominated persons to ensure they are competent to carry out the activities outlined in 3b and 3c above.
- Audit compliance with this policy and the underpinning regulations.

f) Occupational Health

Provide health surveillance on request.

- Give feedback and guidance on risk to individuals following health surveillance.
- Feedback group results from health surveillance to the appropriate manager.
- Advise the appropriate manager if there are restrictions on an individual's ability to work due to health risks.

4. References and further reading

Hand Arm Vibration The Control of Vibration at Work Regulations, 2005. L140 HSE Books

Hand-arm vibration – Advice for employees (INDG296(rev1))
http://www.hse.gov.uk/pubns/indg296.pdf

Hand Arm vibration at work – HSE pages
http://www.hse.gov.uk/vibration/hav/index.htm

Control the risks from hand-arm vibration: Advice for employers on the Control of Vibration at Work Regulations 2005 (INDG175(rev3))
http://www.hse.gov.uk/pubns/indg175.pdf

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