

## Controlling the risks from vibration at work

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### 1. Scope

This guidance is applicable to all Schools/Services that have members of staff in roles that involve them using hand-held power tools and equipment and/or regular driving of off-road vehicles that could lead to a range of vibration related health conditions. Examples of roles at the University which require frequent and regular use of vibrating tools and equipment include those involved in the maintenance of grounds and buildings.

## **2. Introduction**

The Control of Vibration at Work Regulations 2005 impose duties on the University to protect employees who may be exposed to risks from either hand-arm or whole-body vibration at work, and others who might be directly affected by the work. This guidance outlines measures that need to be in place to protect employees from the risks of Hand Arm Vibration Syndrome (HAVS) and an increased risk of back pain which can be caused by exposure to vibration.

These measures will include assessing the risks from vibration exposure and taking steps to reduce vibration exposure. Providing training and information for employees on the risks from vibration and the measures in place to reduce these and providing health surveillance where the risk assessment shows that this is appropriate.

## **3. Vibration health effects**

### **3.1 Hand-arm vibration**

Hand-arm vibration is vibration transmitted from work processes into workers' hands and arms. It can be caused by operating hand-held power tools such as chainsaws or powered lawnmowers.

Regular and frequent exposure to hand-held vibration can cause permanent health effects causing a range of conditions collectively known as hand-arm vibration syndrome (HAVS), as well as specific diseases such as carpal tunnel syndrome.

### **3.2 Whole-body vibration**

Whole-body vibration is shaking or jolting of the human body through a supporting surface which is usually a seat or the floor, for example when driving on a vehicle off-road including tractors or fork-lift trucks.

In some cases whole-body vibration can aggravate a back problem caused by another activity, it is unlikely that exposure to whole-body vibration at work on its own will cause back pain.

## **4. Roles and responsibilities**

### **4.1 Head of School/Service**

The Head of School / Service is responsible for ensuring that arrangements are in place to eliminate the risk from vibration at work where possible and effectively control measures are in place in their areas of responsibility and that these arrangements are communicated to all staff, students and volunteers via the local rules document.

## 4.2 Line Manager/Supervisor

Line Managers/Supervisors have a responsibility to ensure that;

- There is a procedure in place to ensure that vibration risks are assessed and that employees are not exposed to vibration above the exposure limit value.
- Ensure if daily exposure action levels are likely to be exceeded that action is taken to ensure that;
  - there are controls in place to eliminate the risk or to reduce exposure to as low a level as reasonably practicable, and
  - those staff requiring health surveillance are identified through risk assessment and are referred to the Occupational Health Service.
- Staff are provided with information and training on health risks and control measures in place.
- Ensure vibration factors are taken into account when hiring or purchasing new equipment
- The risk assessment is reviewed and updated on a regular basis.

## 4.3 Occupational Health Service

The University Occupational Health Service is responsible for ensuring that;

- Organising and carrying out appropriate health surveillance programmes and associated training and education as required. Ensuring that health surveillance records are confidentially maintained.
- Notifying the Line Manager of health surveillance results and any resulting recommendations.

## 4.4 Employees

Members of staff have a responsibility to ensure that they;

- Comply with control measures outlined in risk assessment
- Use all equipment in accordance with instruction
- Report to their line manager immediately any symptoms that associated with hand-arm vibration or whole body vibration
- Cooperate with health surveillance programmes
- Report any defects or difficulties with any equipment

# 5. Exposure levels

## 5.1 Levels for hand-arm vibration

### Exposure action value

The exposure action value (EAV) is a daily amount of vibration exposure above

which employers are required to take action to control exposure.

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

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

### **Exposure Limit value**

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

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

## **5.2 Levels for whole-body vibration**

### **Exposure action value**

The exposure action value (EAV) is a daily amount of vibration exposure above which employers are required to take action to control exposure.

Exposure Action Value (EAV) – 0.5 m/s<sup>2</sup> A(8) (exposure averaged over a day)

### **Exposure Limit value**

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

Exposure Limit Value (ELV) – 1.15 m/s<sup>2</sup> A(8) (exposure averaged over a day)

Operators of some off-road machines and vehicles may exceed the limit value but this will depend on the task, vehicle speed, ground conditions, driver skill and duration of the operation.

## **6. 5 Steps to Risk Assessment**

The following outlines the five steps to complete an assessment of the risk to health created by vibration;

### **Step 1- Identify the hazards**

In order to identify whether there is a significant risk from vibration the following should be considered;

- Ask employees which if any tools, machines, processes involve regular exposure to vibration. This will lead to a list of tools and jobs.
- Consult equipment handbooks which should declare vibration emission values. 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. Additional information may be sought from equipment suppliers.

- Alternate sources of data include websites which have measured vibration levels of equipment in real use, these include <http://www.operc.com/havtec/default.asp>
- Ask members of staff if they have any symptoms associated with hand-arm vibration or with whole-body vibration.
- Observe specific working practices.
- Vibration measurements can be taken for specific tools or equipment, if specific measurements are required, ensure that these are carried out by a competent person using specialised equipment.

## Step 2 - Identify all persons who may be at risk

If there is likely to be a risk the next stage is to identify who may be at risk. This can be achieved by making a list of employees who use vibrating machinery or equipment and which jobs they do. Employees use equipment/tools/vehicles in different ways, their posture or technique may increase their vibration exposure from a particular activity by up to 50% compared to colleagues.

Some members of staff may be at particular risk. These would include employees with existing HAVS or other diseases of the hands, arms, wrists or shoulders. Also those with existing back conditions.

## Step 3 - Assess whether current controls are adequate

In order to assess whether control measures are adequate an indication on whether individuals are exceeding EAV's and ELV's is required. In order to do this the Health and Safety Executive (HSE) have produced a 'calculator' tool which calculates the daily vibration exposure that an employee is subjected to. A separate HSE calculator is available for both hand-arm vibration and for whole-body vibration, these resources can be accessed via the Health and Safety Executive website at; <http://www.hse.gov.uk/vibration/hav/vibrationcalc.htm>

Action should be taken to reduce risks from vibration to as low as reasonably practicable, even if vibration levels are below the Exposure Action Level. These controls should include the following;

- Consider whether the work can be done another way which then eliminates or reduces exposure to vibration. Workstations may be able to be improved to minimise for example loads on employee's hands, wrists and arms caused by poor posture.
- Replacing tools/equipment/vehicles with alternatives which produce lower magnitudes of vibration.
- Ensuring work activities are designed to take into account ergonomic principles, and to encourage good posture.
- Ensuring all equipment/vehicles are properly maintained.
- Reducing time exposed to vibration e.g. regular breaks, job rotation etc

- Providing suitable clothing to protect employees from cold and damp.
- Providing suitable training and information for all those exposed to vibration. Training should include health effects of vibration, how to recognise and report symptoms, significant findings of risk assessments, ways to minimise risk and the purpose and delivery of health surveillance programmes.

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

Personal vibration exposure must not exceed the Exposure Limit Value (ELV), the only exception to this is for occasional (e.g. emergency work) where the ELV is exceeded on one day.

#### **Step 4- Record the findings**

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 stand-alone document, or can be incorporated into the overall risk assessment document for a school or service.

#### **Step 5 - Monitor and review the risk assessment**

It is the responsibility of the Line Manager to regularly check that controls introduced are effective. This will involve talking to employees and monitoring health surveillance results are necessary.

It is strongly recommended that the risk assessment should be reviewed if there is any change in vibration exposure and on an annually basis.

## **7. Health surveillance**

It is the responsibility of Line Managers to identify staff requiring health surveillance for vibration risks through risk assessment and ensure that they are referred to the University Occupational Health Service. Health surveillance is required if there is a risk to an employee's health or employees are likely to be exposed to vibration at or above an exposure action value.

The tiered approach to health surveillance is outlined below;

Tier 1: Initial or baseline assessment

All new employees and existing employees before they begin exposure to vibration will be assessed using a health questionnaire. Any employees who declare any related symptoms will be invited for further assessment and advice.

Tier 2: Annual (screening) questionnaire

All employees who are at risk will be reassessed annually using a health questionnaire. In the absence of reported symptoms the health questionnaire will be repeated at 12 month intervals.

Employees will be reminded to report any new symptoms as soon as they occur and not to wait until the next time that screening is carried out.

### Tier 3: Diagnostic assessment

This will follow Tier 2 if symptoms are reported and consist of a face to face detailed and targeted clinical assessment. If relevant symptoms are reported or clinical effects found then a diagnosis based on medical history and/or additional standardised tests is made. Fitness for work recommendations will be made to the manager.

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.

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. This can be done at the same time as asking them to complete the initial health assessment form for return to the Occupational Health Service.

Job descriptions need to be specific about detailing hazards which may affect an individual's existing health condition/disability or that has the potential of causing a new health conditions/disability. Therefore any job role where the risk assessment indicates that there is a risk to the health of staff exposed to vibration must outline the hazard in the job description. This information is required to enable the individual to self de-select early in the recruitment process if the job is clearly not suitable. Further guidance is available on the Human Resources website.