

Department of Human Resource

GUIDANCE AND PROCEDURE FOR HAND ARM VIBRATION

HAVS is preventable, but once the damage is done it is permanent.

1.0 What is Hand-Arm Vibration Syndrome (HAVS)?

Hand-Arm Vibration Syndrome (HAVS) is a widespread industrial disease. The Health and Safety Executive (HSE) estimate that over 1 million people are exposed to high levels of vibration through their work. The attacks are painful and can result in the loss of the ability to grip properly.

HAVS is a general term embracing various kinds of damage, including:

- vascular disorders such as Vibration White Finger (VWF) causing impaired blood circulation and blanching of affected fingers and parts of the hand;
- neurological and muscular damage leading to pain and numbness and tingling in the fingers and hands, reduced grip strength and dexterity, and reduced sensitivity to touch and temperature; and
- Other passive kinds of damage leading to pain and stiffness in the joints of the wrists, elbows and shoulders. These forms of change and the factors contributing to them are less well understood than the vascular and neurological effects.

In the first stages of vibration injury, the worker may notice a tingling sensation or 'pins and needles' in the fingers; this is most noticeable at the end of a working day and may be accompanied by numbness. With continued exposure, the person may suffer periodic attacks in which the fingers change colour when exposed to the cold. In mild cases, the whiteness and numbness only affect the tips of the fingers but as the condition becomes more severe, the whole finger down to the knuckles becomes white. A typical attack might occur when a person suffering from the condition leaves for work on a cold winter morning and notices that the fingers rapidly become pale and feeling is lost. This phase is followed by an intense red flush signaling the return of the blood circulation to the fingers and is usually accompanied by uncomfortable throbbing.

In more severe forms, attacks occur frequently in cold weather. They are likely to take place not only at work, but also during leisure activities, or secondary employment at evenings and weekends which may take them over their daily exposure limits. The attacks may last for varying times, causing considerable pain and loss of manual dexterity, resulting in clumsiness and reduced grip strength. As the condition worsens, attacks can occur even in warm surroundings. In very severe cases, blood circulation may be permanently impaired and fingers may take on a blue-black appearance, this condition is permanent.

HAVS is a reportable disease under the Reporting of Injuries, Diseases and Dangerous Occurrences Regulations (RIDDOR). Carpal Tunnel Syndrome may also be reportable under certain circumstances – please seek guidance from an Occupational Health, or Occupational Safety Adviser.



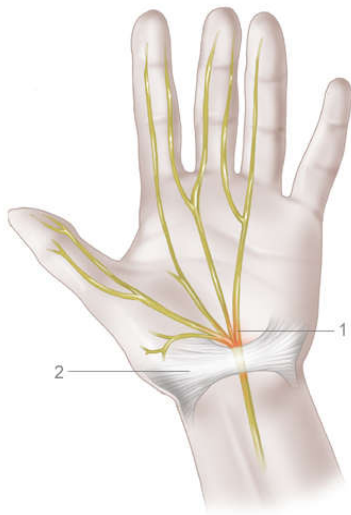
1.1 What is Carpal Tunnel Syndrome?

Carpal tunnel syndrome (CTS) is a relatively common condition that causes pain, numbness and a burning or tingling sensation in your hand and fingers. Symptoms of CTS can range from mild to severe.

The carpal tunnel

The carpal tunnel is a small tunnel that runs from the bottom of your wrist to your lower palm. Carpal tunnel syndrome occurs when the median nerve, which runs from the forearm into the hand, becomes pressed or squeezed at the wrist. The median nerve controls sensations to the palm side of the thumb and fingers (although not the little finger), as well as impulses to some small muscles in the hand that allow the fingers and thumb to move.

The nerve and tendons are protected by a ridge of bone and ligaments. In cases of CTS, the space inside the tunnel shrinks, placing pressure on the median nerve. Compression of the nerve results in symptoms of pain and numbness.



1. Inflamed median nerve
2. Retinaculum ligament

Although painful sensations may indicate other conditions, carpal tunnel syndrome is the most common and widely known of the entrapment neuropathies in which the body's peripheral nerves are compressed or traumatized.

Symptoms usually start gradually, with frequent burning, tingling, or itching numbness in the palm of the hand and the fingers, especially the thumb and the index and middle fingers. Some carpal tunnel sufferers say their fingers feel useless and swollen, even though little or no swelling is apparent. The symptoms often first appear in one or both hands during the night, since many people sleep with flexed wrists. A person with carpal tunnel syndrome may wake up feeling the need to "shake out" the hand or wrist. As symptoms worsen, people might feel tingling during the day. Decreased grip strength may make it difficult to form a fist, grasp small objects, or perform other manual tasks. In chronic and/or untreated cases, the muscles at the base of the thumb may waste away. Some people are unable to tell between hot and cold by touch.

1.2 What is Raynaud's Syndrome?

Raynaud's syndrome, which includes Raynaud's phenomenon/disease, is a disorder of blood circulation in the fingers. This needs to be confirmed by a GP, who will undertake certain tests on your circulation. It is not caused in the same way as Hand arm vibration but has similar symptoms.

This condition aggravates with cold exposure. Exposure to cold abnormally reduces blood circulation causing the fingers to become pale, waxy-white or purple. The disorder is sometimes called "white finger", "wax finger" or "dead finger."

Raynaud's disease is an inherited disease that has many different triggers, which may include certain types of workplace exposures. It is most commonly associated with hand-arm vibration syndrome but it is also involved in other occupational diseases.

It is important to know the signs and symptoms of Raynaud's phenomenon and the workplace hazards that cause it. Awareness can help prevent the disorder from occurring or progressing to a serious stage. If not detected in the early stages, the disorder can permanently impair blood circulation in the fingers.

Raynaud's phenomenon is recurrent spasm of the arteries supplying the fingers, toes or other extremities, which causes them to go bluish-white, cold and very painful.

The trigger for an episode is usually either exposure to the cold or mechanical stress (such as intense vibration, for example from using a drill). This causes the arteries to go into spasm, shutting down and therefore closing off the blood supply to the extremities, so causing the symptoms. These usually affect the fingers and toes

Although Raynaud's phenomenon is not life threatening, severe cases cause disability and may force workers to leave their jobs. Although rare, severe cases can lead to breakdown of the skin and gangrene. Less severely affected workers sometimes have to change their social activities and work habits to avoid attacks of white finger.

1.3 What is Whole Body Vibration (WBV)?

www.hse.gov.uk/vibration/wbv/index.htm

2.0 Management responsibilities

It is the responsibility of those managers who manage working activities involving hand-held power tools, hand-guided powered equipment or hand-fed powered equipment to: -

- Read, understand and implement the contents of this guidance and procedures;
- Ensure risk assessments are carried out where there are hazards from vibrating machinery ;
- Use the findings of the risk assessments to devise and implement local safe systems of work (i.e. written safety instructions and/or procedures for the working practices of the employees for which they are responsible);
- Ensure that the above mentioned safe systems are to a standard similar to (or better than) that established by this document;
- Bring to the attention of those for whom they have health and safety responsibilities the contents of such systems (i.e. the provision of actual documentation);
- When appropriate, arrange for health surveillance to be undertaken on those employees identified as being potentially at risk from HAVS and WBV; and take appropriate action to reduce exposure and prevent reoccurrence.
- Provide and maintain a work environment, which is so far as reasonably practicable safe and without risk to health;
- Ensure that safe systems of work are regularly reviewed and updated;
- Ensure that appropriate training on HAVS/WBV for all employees at risk and/or exposed to vibratory equipment is provided, updated and reviewed;
- Provide adequate information on any known potential health and safety hazards associated with an employees work;
- Recognise the need for and implement protective measures required;
- Keep adequate records of staff who are exposed to vibration and training or health surveillance undertaken;
- Keep adequate record of purchasing, maintenance ,inspection and testing of equipment
- Comply with manufacturers guidance

To ensure continued wellbeing of employees exposed to vibrating equipment employees identified by Occupational Health as having symptoms of vibration will be colour coded to ensure that they can be managed safely and ensure that their exposure levels are closely monitored

In the event of uncertainty, managers should seek advice from the Occupational Safety Team.

2.1 Employee Responsibilities

- Should accurately record daily point's usage of any equipment that exposes them to Hand Arm Vibration in accordance with the HAV's guidance.
- Read, understand and adhere to any safe systems prepared by their line managers;
- Bring to the attention of their line managers, any deficiencies and/or problems in relation to adhering to, or the implementation of, such safe systems of work;

- Bring to the attention of their managers any signs or symptoms of HAVS/WBV that they think they have developed; and
- When requested, attend appointments at Occupational Health for Assessment and health surveillance
- Check the equipment being used regularly during use;
- Comply with manufacturers guidance in relation to each piece of equipment;
- Be familiar with this guidance and procedure and ensure that the points system is understood and adhered to;

In the event of uncertainty employees should seek advice from their line managers or the Occupational Safety Team.

3.0 ARRANGEMENTS

3.1 Employee Pre Employment Screening

The Council will identify all activities where exposure to vibrating equipment may arise and assess the risk.

Where there is the potential for exposure to excessive vibration applicants will undertake a pre employment screening/clinical examination. This will be carried out by Occupational Health who will be looking for symptoms of Hand Arm Vibration or other medical conditions, which may restrict or prohibit work with vibrating equipment prior to employment.

Advice from the Council's Occupational Health Team will be considered when making offers of employment and where appropriate, all practical adjustments will be made to accommodate any restrictions identified

3.2 Clinical Examination

The clinical examination by the qualified person is not a full medical examination but a targeted assessment. Examination is directed at vascular and neurological function in the arm and hand; a number of specific tests may be appropriate. A limited musculoskeletal examination is also recommended. An assessment of grip strength and manual dexterity should be made, by trained medical professionals

4.0 Training

All employees identified at risk of exposure to vibrating equipment will be given adequate information with regard to the symptoms, risk and methods of controlling exposure. In addition each department or service where HAV has been identified will nominate an officer with overall responsibility for the implementation of these procedures. The officer will be responsible for ensuring that all operatives are adequately trained and that appropriate records (including risk assessments), procurement and testing procedures are in place.

The Council will provide training to ensure that any employees engaged on works which may involve significant exposure to vibrating equipment fully understand: -

- Risks associated with exposure to vibration.
- Symptoms associated with the onset and progression of the disease.

- Effect of external factors of the onset and development of the disease (Cold, Smoking, Diabetes, other circulatory inhibitors other diseases or medication).
- Action to take if they are suffering from any symptoms of the disease.
- Systems for notifying the Council of any event, which could or does give rise to the risk of excessive vibration, or of any medical condition, which appears to support a diagnosis of a vibration-induced condition
- Council's procedure for identifying and monitoring the vibration levels and daily exposure times for all equipment to which they have access.
- It is important that staff do not exceed the maximum daily exposure level.
- The significance of the procedures put in place to minimise the risk to staff, including their own obligations with regard to control measures in place (including but not limited to time sheets to confirm that they have not exceeded the maximum daily exposure levels.)
- Importance of testing equipment, planned maintenance and maintaining documents.

This training will be delivered in-house via tool box talks. Each employee will be assessed following the training which reinforces the existing risk assessment and safe systems of work.

5.0 Operational Vibration Control

General

Employees will be issued with a list of equipment which could possibly cause vibration in their workplace. The equipment will be adequately identified and will have attached to it a Hand Arm Vibration Data Tag, which will be colour coded and contain the point's classification system, relevant to that piece of equipment.

Any hire equipment needs to be compatible with the council system
The points system is explained in brief in **Appendix 1**

All employees will be given an appropriate daily recording device with multiple scales to enable the recording and summation of exposure to vibration on different pieces of equipment during the day.

Employees are instructed to record each and every period of exposure on their daily points system and to advise their line manager if they reach the maximum daily exposure before the end of their working day and where continuity of work cannot be achieved by job rotation.

Employees will be required to enter their daily points total and sign their daily work time records to confirm that they have not exceeded their maximum daily allowance. Any employee failing to complete the work records with details of their daily points may be subject to disciplinary proceedings.

It will be each employee and team leader's responsibility to minimise exposure through job rotation and the deployment of best practice.

5.1 Symptoms Identified

Some employees who through medical screening have been identified as having symptoms of the disease or other medical conditions, which may give a predisposition to the disease, may have extra restrictions with regard to

exposure placed upon them. All such employees will be individually counseled and instructed on levels of exposure and control measures.

Employees who have been informed by Occupational Health that they have symptoms of Hand Arm Vibration or similar must discuss this with management, so that suitable changes are made to their HAV exposure whilst at work.

5.2 Health Surveillance

Health surveillance is appropriate for all workers who carry out tasks identified as giving a significant risk of HAVS. The surveillance programme will include regular health checks and enable any symptoms to be assessed and appropriate information to be given to individuals regarding further exposure to vibration.

6.0 Potentially Hazardous Processes and Tools

The following are examples of processes and equipment where there may be a risk of developing HAVS:

- percussive tools used in road maintenance, construction, etc. (i.e. power hammers, vibratory compactors, concrete breakers, road drills);
- grinders and other rotary tools (i.e. hand-held grinders, hand-held sanders, pedestal grinders, rotary burring tools); and
- Timber and wood machining tools (i.e. chainsaws, brush cutters, hand-held or hand-fed circular saws, electrical screwdrivers, powered mowers and shears, strimmers).

The above list is not comprehensive. It is safest to regard regular prolonged use of any high-vibration tool or machine as suspect, especially if it causes tingling or numbness in the user's fingers ensure that users follow the points guidance provided with the machinery.

6.1 Control Measures

Where a risk of developing HAVS has been identified a preventive programme must be implemented. A risk assessment of the task or process will be carried out and the following hierarchy of control measures adopted to minimise the risk of injury:

- look at alternative ways of working which eliminate the need to use vibrating equipment altogether;
- substitute the task or process with one that involves less vibration i.e. replacing a hand-held concrete breaker for a JCB with a pneumatic hammer drill attachment (pecker);
- use tools designed for low vibration, for example chain-saws with anti-vibration mountings and tools with vibration-isolating handles;
- maintain and service equipment effectively according to the manufacturer's instructions and implement effective fault reporting procedures;
- avoid uninterrupted exposure to vibration over long periods of time. It is better for work to be arranged so that periods of exposure are broken by periods of work, which do not involve vibration. This can be achieved for example by job rotation;

- make arrangements to reduce the grip, push and other forces which the worker must apply, for example use supports for tools and work pieces and make sure processes and equipment are ergonomically designed;
- train, inform and supervise employees to ensure they are aware of the hazard, the safe working procedures to be followed which minimise risk and how to recognise and report signs of injury;
- select tools that are suitable for the task at hand;
- Provide personal protective equipment to help employees keep warm and maintain good blood circulation.

APPENDIX 1 HAVS PROCEDURES

The HSE introduced a points system to help control over exposure to vibration. The system allows 400 points per person during an 8-hour period.

A competent person is trained to operate the HAV measuring equipment and will measure each piece of vibrating equipment; these measurements will be converted into points per minute.

Max points per person = 400 a day

Recent changes within the HSE mean that the management have the duty to estimate the exposure points prior to issuing the works order.

Rotated usage must be considered when using vibrating plant or equipment.

All plant will be measured by a competent person on a regular basis.

This should be on receipt of purchased/hired machinery, or when a repair has been carried out, where machinery appears not to be operating at its optimum performance or if a machine has been reported as faulty, together with regular random samples of 10% of the equipment being used on a six monthly basis.

www.hse.gov.uk/vibration

Vibration and noise; The HSE have been working on a joint venture of Noise and vibration as the relationship between the two, have a profound effect on individuals wellbeing.

See www.hse.gov.uk/noise/workingwithus.htm for further information

HAVS Stockholm Staging APPENDIX 2

SENSORINEURAL STAGE CRITERIA

0 SN Vibration Exposure but NO symptoms

Early - 1 SN Intermittent numbness and/or tingling with a Sensorineural score of >3 <6

2 SN (early) Intermittent or persistent numbness, and/or tingling, reduced sensory perception with a score of >6 <9

Late - 2 SN (late) As 2 SN (early) but with a score of >9 <16

3 SN Intermittent or persistent numbness and/or tingling, reduced manipulative dexterity and a SN score of >19

VASCULAR STAGE CRITERIA

0V No attacks

Early - 1V Attacks affecting only the distal phalanges of one or more fingers – usually a blanching score of 1 – 4

2V (early) Occasional attacks of whiteness affecting the distal and middle (rarely also the proximal) phalanges of one or more fingers – usually a blanching score of 5 – 9

Late - 2V (late) Frequent attacks of whiteness affecting the distal and middle phalanges of one or more fingers – usually blanching score of 10 – 16

3V Frequent attacks of whiteness affecting all of the phalanges of most of the fingers – usually a blanching score of 18 or more.

4V as 3V and trophic changes

Colour Code

	OSN/OV - Not affected
	1V, 2V to 1SN, 2SN Early – can be managed on tools with reduced points. To be monitored regularly by Occupational Health. If at review they are considered “early progressive” by Occupational Health, a member of the Occupational Safety Team will discuss options available and advise managers as to possible action.
	Remove from tools immediately Managers are advised to discuss the matter with HR
	Has had HAV claim paid out – must NOT use vibrating tools