

# HAND ARM VIBRATION (HAVS) RAISING AWARENESS FOR GREENKEEPERS

By Herbert Barker

Over the next few months Greenkeeper International will be working in conjunction with vibration testing services Fivesquared to discuss the implications of Hand Arm Vibration (HAVS), Whole Body Vibration (WBV) and Noise.

We start the series this month with Hand Arm Vibration and the measures you can put in place to try to prevent vibration white finger.

## OVERVIEW

Hand Arm Vibration is a subject that has become 'high-profile' in recent years since the introduction of specific legislation in 2005 to control and manage vibration in the workplace.

In 2002, the European Commission introduced legislation 'harmonising' vibration levels in the workplace for all member states, and gave each state three years to bring it in to effect.

The UK 'version' became law in 2005 as the 'Control of Vibration at Work Regulations (2005)' and this details the responsibilities and obligations of employers and employees to monitor and control the effects of vibration in the workplace.

## HAND ARM VIBRATION IN GOLF CLUBS

Research shows that a relatively small percentage of Golf Clubs have implemented systems for the management of vibration and taken the subject seriously for their greenkeeping staff, while others know of the legislation but have done little, sometimes due to budget constraints. Some clubs however, have decided that Hand Arm Vibration doesn't affect them and have 'shelved' any action to help protect their greenkeeping staff.

Claims have been issued and won against golf clubs for failing to protect their employees from VWF (Vibration white finger). With claims averaging £10 - £20,000 across all industries, can the greenkeeping sector afford to ignore the legislation any longer.

This article is designed to give a brief overview of the problems of HAVS and the solutions.

## WHAT IS IT?

HAVS is a widespread recognized industrial disease affecting tens of thousands of workers. It is a disorder which affects the blood vessels, nerves, muscles, and joints, of the hand, wrist, and arm. It's best known effect is vibration-induced 'white finger' (VWF)

It can be caused through the use of vibrating hand held power tools for long periods, (hours, days, weeks, or years.)

Tools and processes likely to be hazardous are numerous and include tools such as:

- Hedge Trimmers • Chain saws • Mowers
- Blowers • Strimmers
- Hammer Drills • Pistol Drills • Jigsaws
- Hand-held (or hand fed) circular saws
- Concrete Breakers • Chipping Hammers
- Vibrating Pokers
- Pedestal & Hand-held Grinders
- Rotary burring tools
- Vibratory Compactors • Scabblers
- Jigger Picks

This list is not comprehensive and where people regularly work with tools or processes such as these for prolonged periods, there is likely to be a risk of injury. It is safest to regard regular prolonged use of any high vibration tool or machine as suspect.

## HOW DO I RECOGNISE IT?

Exposure to Hand Arm Vibration can result in various symptoms collectively known as Hand Arm Vibration Syndrome, and more commonly known as 'Vibration White Finger'. The condition can affect nerves, joints, muscles, blood vessels, and connective tissues of the hand and forearm. The

symptoms may appear separately or simultaneously and usually start to occur in cold weather.

### Tingling 'Whiteness' Or Numbness In The Fingers. (Blood Vessels And Nerves)

This may not be noticeable at the end of a working day, and in mild cases may affect only the tips of the fingers. As the condition worsens, the whole finger down to the knuckles may become white. Feeling may also be lost.

Any vibrating tool, or process, which causes tingling or numbness after 5 to 10 minutes of continuous use is suspect.

### Fingers Change Colour (Blood Vessels)

With continued exposure the person may suffer periodic attacks where the fingers change colour when exposed to cold. Initially the fingers rapidly become pale and feeling is lost. This phase is followed by an intense red flush (sometimes preceded by a dusky bluish phase) signaling the return of blood circulation to the fingers and is usually accompanied by uncomfortable throbbing or pain.

### Loss Of Manual Dexterity (Nerves & Muscles)

In more severe forms; attacks may occur frequently in cold weather, not only at work, but during leisure activities, such as gardening, car washing or even watching outdoor sports; and may last up to an hour causing considerable pain and loss of manual dexterity and reduced grip strength.

### Carpal Tunnel Syndrome (Muscles And Nerves)

Carpal Tunnel Syndrome affects the nerves and muscles of the wrist and hand and can be due to conditional twisting of the wrist. It can

be caused by Hand-Arm Vibration, or through other causes.

As the condition worsens, attacks can occur even in warm surroundings and may affect the persons sleeping habits. Pain and stiffness in the hands and joints of the wrists, elbows and shoulder can occur.

HAVS is incurable, but can be prevented or mitigated through management of the problem.

## WHO IS AT RISK?

Any person using hand held power tools on a regular basis whether a chainsaw, mower, strimmer, or blower. The associated risks remain the same.

Those whose jobs require regular frequent use of vibrating tools and equipment are most at risk. These occur in a wide range of industries, including:

- Road and railway construction/maintenance
- Concrete Products
- Construction
- Forestry/Gardening/Greenkeeping
- Foundries
- Light and heavy engineering
- Mining and quarrying
- Metal working
- Stone masonry
- Wood working
- Public services
- Public utilities

## SO, WHAT CAN I DO ABOUT IT?

The 'Control of Vibration at Work Regulations (2005)' puts an obligation on both employers and employees to assess, control and manage vibration in the workplace.

With increasing legislation concerning vibration exposure, many companies are challenged to determine which information is correct and current. This can be somewhat confusing. To successfully protect your workforce from the effects of HAVS it is vital that employers have an effective Hand Arm Vibration Management System to - Assess, Measure, Monitor, Control, and Manage any associated HAVS risks.

Employers are obliged to provide information and training for employees to ensure knowledge of health risks, health surveillance, vibration management systems, safe use of equipment, and awareness of problems associated with HAVS.

### Assess

The first stage is assessment – "Do I have a problem?"

This can be achieved with a simple questionnaire asking the present workforce whether they are suffering from any of the symptoms of HAVS.

"Do you suffer from tingling, blanching or numbness in the fingers?"

The responses to the questionnaire will

determine the next stage which is Health Surveillance.

Potential employees should also be questioned on previous employment to ascertain previous work which may have entailed vibration from hand held power tools, and hobbies which may involve high vibration – e.g. motorcycling or DIY.

### Health Surveillance

Employers are obliged to provide Health Surveillance for any of their workforce using hand held vibrating equipment to prevent symptoms appearing or existing symptoms from becoming worse. HAVS is incurable and if no precautions are taken then symptoms will usually get worse with time.

Specialist health surveillance may be necessary for employees with symptoms, so they can be graded, on the 'Stockholm Workshop' grade, which gives an indication of the severity of nerve or vascular damage.

Regular check ups may be necessary to monitor employees suffering symptoms.

### Vibration Levels of Equipment

Sources from which employers can obtain vibration data for power tools are –

- Manufacturer's Literature
- Equipment Suppliers
- Research Organisations
- Trade Associations
- HSE
- Vibration Consultants
- Measurements in the workplace

Of these, the most accurate tends to be measurement in the workplace, which gives vibration levels for your tools or equipment operating under your working conditions.

Having obtained vibration levels under working conditions, employers should determine the highest vibration tools and attempt to re-design the job or process to eliminate the use of hand held power tools in these processes. This may not always be possible, but should be the long term objective.

The legislation set lower values for vibration in 2005.

### Exposure Action Value (EAV) – 2.5m/s<sup>2</sup> (metres per second squared).

Processes, tools, or equipment having vibration at this level or above must have a risk assessment; the workforce must have information or training to recognise the symptoms of HAVS; and PPE issued to mitigate the effects of vibration and cold.

Exposure Limit Value (ELV) – 5m/s<sup>2</sup> (metres per second squared).

For tools or equipment having vibration at this level or above (which have an economic life) employers should attempt to reduce the vibration levels to below the ELV, by fitting any appropriate anti-vibration fittings, or purchase new vibration

reduced equipment.

Where vibration levels are still above the ELV after vibration reduction measures have been implemented, then the only other option is to reduce the time each person uses the tool or equipment.

### Monitor, Control and Manage

If an operator uses one tool or piece of equipment per day, then monitoring and control of vibration levels becomes relatively simple. The problem occurs when operators use several tools for shorter periods than allowed by the vibration levels measured. Each 'burst' of vibration has to be added to ensure the operator is not exceeding his/her daily vibration level.

There are several methods in use but the simplest is a system whereby vibration values can be converted into 'points' (using suitable formulae) and the tool or equipment is 'tagged' with this information.

The operator simply has to note the number of points on the tag, and multiply by the time used (hands on – power on) to determine how many points have been used on each separate use of tools or equipment.

There is a 'daily' maximum number of points, and as long as this is not exceeded, then the operator will not exceed his daily vibration level.

This is an effective, real time, management system, in use by many of Fivesquared's clients – Local authorities, public utility companies, large construction companies, and several golf greenkeeping departments.

**Fivesquared is a vibration testing services company**

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