

HEALTH RISKS FROM HAND-ARM VIBRATION



Advice for Employees and the Self-Employed

WARNING

If you are regularly and frequently exposed to high levels of vibration through your hands from the equipment or materials you are working with, it can cause permanent damage to your hands and arms.

This brochure gives you important advice about avoiding risks from hand-arm vibration (HAV). Please take the time to read it.

WHAT IS Hand-Arm Vibration (HAV)?

HAV is vibration that reaches your hands when you are working with hand-held power tools or hand-guided machinery or when you are holding materials that are being processed by machinery.

HOW CAN HAV AFFECT MY HEALTH?

Regular exposure to HAV can cause a range of permanent injuries to your hands and arms that are known as hand-arm vibration syndrome (HAVS). The injuries you could suffer include damage to your:

- ▼ blood circulatory system (vibration white finger [VWF]);
- ▼ sensory nerves;
- ▼ muscles;
- ▼ bones; and
- ▼ joints.



- ✚ Cold-provoked colour changes in the hands (as in the picture above)
- ✚ Severe pain and numbness
- ✚ Pins and needles
- ✚ Loss of sense of touch
- ✚ Loss of grip strength
- ✚ Painful wrist (carpal tunnel syndrome)

WHAT ARE THE SYMPTOMS?

Vibration White Finger (VWF)

The symptoms of VWF are usually set off when your hands or body get cold or wet. Early on they are mild. The first sign is often an occasional attack when your fingertips become white. If you continue to work with vibrating tools, the affected area can become larger. During an attack your fingers may also become numb and you may get “pins and needles.” An attack may end with the whiteness in your fingers changing to a deep red flush that is often very painful. The toes of your feet may also be affected if the VWF is severe, or vibration is directly transmitted to the feet from a vibrating surface.

Sensory Nerve Damage

Damage to the nerves in your fingers will mean that your senses of touch and temperature are reduced and you could experience persistent numbness or tingling in your fingers.

Damage To Muscles, Bones And Joints

You may notice loss of strength in your hands and pain in your wrists and arms.

HOW WILL THE SYMPTOMS AFFECT WHAT I CAN DO?

They could limit the work you can do. For example, you may not be able to:

- ▼ continue working with vibrating equipment (which would make symptoms worse);
- ▼ work in cold or wet conditions (which could trigger painful attacks); and
- ▼ do work requiring finger manipulation (e.g., handling screws or nails).

They may also affect your family and leisure activities for the same reasons, for example:

- ▼ fishing;
- ▼ swimming;
- ▼ golf;
- ▼ washing the car;
- ▼ gardening;
- ▼ winter sports (hockey, skating, etc.); and
- ▼ even fastening buttons or sorting out coins.

•WHAT CAUSES THE PROBLEM?

•Many common tools and processes such as road drills, pedestal grinders, power hammers, chainsaws and riveting and chipping hammers produce high levels of vibration that can cause permanent damage to your hands and arms. The risk of permanent damage depends on a number of things:

- ▼ how high the vibration levels are;
- ▼ how long you use the equipment for;
- ▼ how awkward it is for you to use the equipment;
 - ▼ steady postures, force and repetition can contribute to compression of nerves and partial blockage of blood vessels
- ▼ how tightly you have to grip the equipment;
- ▼ how cold and wet you get when using the equipment;
- ▼ cold temperatures can increase blood thickening, affecting circulation.

A simple rule is to think you may be at risk if you get tingling or numbness in your fingers during or immediately after use of a vibrating tool or machine.

WHAT CAN I DO TO REDUCE THE RISK?

It is your employer's responsibility to reduce the risk to your health where this can reasonably be done, especially if you have to carry on using high-vibration tools. But you can play a part:

- ▼ Tell your supervisor and/or Health & Safety representative about any tools or processes that produce high levels of vibration so that they can consider what can be done to reduce the risk.


- ▼ Be aware that overtime and shift work are possible risk factors for HAVS.
- ▼ It is important to keep up your blood circulation while working, so:
 - ▶ Keep warm at work, especially your hands. Wear warm gloves and extra clothing if you work in the cold. Your peripheral or skin blood circulation slows down when you are cold.
 - ▶ Don't smoke. Smoking affects blood flow.
 - ▶ Exercise your hands and fingers to improve blood flow.
- ▼ Use the correct tool for the job. Making do with the wrong tool can mean more vibration, that you have to grip the tool more tightly, or that you have to use the tool longer.
- ▼ Do not use any more force than necessary when using tools or machines. Let the tool do the work.
- ▼ Try to avoid long periods of using equipment without a break – short bursts are better.
- ▼ Keep your tools and machines in good working order – badly maintained tools may produce more vibration, so ask your supervisor to make sure they are properly serviced and quickly repaired.
- ▼ Take an active part in your employer's health and safety training.
- ▼ Use anti -vibration gloves.
- ▼ Wear hearing protection. With VWF, there is accelerated hearing loss.
- ▼ Don't ignore symptoms. It is important to do something about them before they become a problem. Tell your supervisor, see your own doctor or the workplace nurse or doctor (if there is one). Explain about your job and show them this brochure. Go for routine medical check-ups.

WHAT CAN MY EMPLOYER DO?

- ▼ Your employer should reduce the risk wherever possible, for example:
 - ▶ seeing if the job can be done without using high-vibration tools;
 - ▶ making sure that new tools have vibration control built in;
 - ▶ modifying existing tools to reduce vibration levels or the grip force needed;
 - ▶ arranging work to give you breaks from the vibration (for example, job rotation);
 - ▶ training you in the correct use of tools and in recognizing the early symptoms of injury;
 - ▶ arranging advice and routine health checks for you if you use high-vibration tools; and
 - ▶ helping you to keep warm in the cold (for example, by providing heating or suitable clothing and gloves).

REFERENCES

- ▶ Health & Safety Executive - UK (2002). Health Risks from Hand-Arm Vibration. HSE Books – UK.
- ▶ Pelmeur, P. L. & Wasserman, D.E. (1998). Hand-arm Vibration - A Comprehensive Guide for Occupational Health Professionals (2nd Ed.). OEM Press, Beverly Farms, Massachusetts .



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