

HEALTH AND SAFETY
GUIDANCE NOTE

WHOLE BODY VIBRATION



NFU Mutual

Risk Management Services

INTRODUCTION

Repeated shocks and jolts from driving certain types of vehicles or standing / sitting on vibrating equipment for a prolonged period of time can cause severe back pain. The Control of Vibration at Work Regulations 2005 [The Control of Vibration at Work Regulations (Northern Ireland) 2005] requires employers to reduce the risk to employees from whole body vibration.

- Poor driver posture;
- Repeated manual handling and lifting of loads by the driver;
- Excessive exposure to whole-body vibration, particularly to shocks and jolts;
- Repeatedly climbing into or jumping down from a high cab or one which is difficult to get in and out of.

The risk increases where the driver or operator is exposed to two or more of these factors together.

WHAT IS WHOLE BODY VIBRATION (WBV)?

Whole body vibration is caused by vibration transmitted through the seat or the feet by workplace machines and vehicles. Work that involves exposure to whole-body vibration occurs commonly in off-road work, such as construction, quarrying and farming but it can occur elsewhere, for example on the road in lorries and trucks, at sea in small fast boats and in the air in some helicopters. Whole-body vibration is not restricted to seated workers such as drivers, but may also be experienced during standing operations such as standing on a concrete crushing machine.

Exposure to high levels of whole-body vibration can present risks to health and safety and are reported to cause or aggravate back injuries. The risks are greatest when the vibration magnitudes are high, the exposure durations long, frequent, and regular, and the vibration includes severe shocks or jolts.

Reasons for back pain in drivers can include:

- Poor design of controls, making it difficult for the driver to operate the machine or vehicle easily or to see properly without twisting or stretching;
- Incorrect adjustment by the driver of the seat position and hand and foot controls, so that it is necessary to continually twist, bend, lean and stretch to operate the machine;
- Sitting for long periods without being able to change position;

WHAT ARE MY LEGAL DUTIES?

The Control of Vibration at Work Regulations requires you to prevent or reduce risks to health and safety from exposure to whole body vibration at work.

As an employer you have to:

- Carry out a risk assessment of the risk from vibration to your employees;
- Take action to reduce vibration exposure;
- Decide if employees are likely to be exposed above the Daily Exposure Action Value (EAV) (see below) and if they are introduce a programme of controls to eliminate risk, or reduce exposure to as low a level as is reasonably practicable;
- Decide if employees are likely to be exposed above the Daily Exposure Limit Value (ELV) (see below) and if they are take immediate action to reduce their exposure below the limit value;
- Make sure the legal limits on vibration exposure are not exceeded;
- Provide information, instruction and training to employees;
- Consult your trade union safety representative or employee representative on your proposals to control risk.

You must also keep a record of your risk assessment and control actions.

WHAT ARE EXPOSURE ACTION VALUE (EAV) AND EXPOSURE LIMIT VALUE (ELV)?

The Exposure Action Value (EAV) is the amount of daily exposure to whole-body vibration above which you are required to take action to reduce risk. Whole-body vibration risks are low for exposures around the action value and only simple control measures are usually necessary in these circumstances.

The Exposure Limit Value (ELV) is the maximum amount of vibration an employee may be exposed to on any single 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.

The EAV and ELV values for whole body vibration you need to be aware of are as follows:

Whole body vibration values	Exposure Action Value (EAV)	Exposure Limit Value (ELV)*
Vibration magnitude level over an eight hour period	0.5m/s ² A(8)	1.15m/ s ² A(8)

(* The Exposure Limit Value MUST NOT be exceeded).

Both EAV and ELV are quoted for an exposure period over an eight hour working day using the designation A(8).

HOW DO I KNOW IF THERE IS A WHOLE BODY VIBRATION PROBLEM IN MY WORKPLACE?

You may have a higher risk of whole body vibration in your workplace if:

- Machine or vehicle manufacturers warn in the machine / vehicle handbook of risks from whole-body vibration;
- The machines or vehicles you are using are unsuitable for the tasks for which they are being used (check the handbook or ask the supplier);
- Operators and drivers are using poor techniques, e.g. driving too fast or operating the machine too aggressively;
- Your employees are operating or driving, for several hours a day, machines likely to cause high vibration exposures;
- Your employees are being jolted, continuously shaken or, when going over bumps, rising visibly in the seat;
- Vehicle roadways or work areas are potholed, cracked or covered in rubble;
- Road-going vehicles are regularly driven off-road or over poorly-paved surfaces for which they are not suitable;
- Operators or drivers report back problems.

HOW CAN I ASSESS THE RISKS?

In most cases it is simpler to make a broad assessment of the risk rather than try to assess exposure in detail, concentrating your main efforts on introducing controls.

To assess the risk to your employees from whole-body vibration you need to collect the information by observing work tasks, talking to your managers, employees and others. This should produce enough information to allow you to make a broad assessment of the risk and to introduce simple control measures to reduce risk to a reasonable level.

Record your findings and assess which groups of your employees might be most at risk.

This kind of broad risk assessment can be done without needing to estimate or measure vibration exposure. Most employers of drivers or operators will not need to do any measurements or employ vibration specialists to help with the risk assessment.

However, it is likely that whole-body vibration is not the only cause, or the main cause, of back pain. Employees may, when driving, identify vibration as the source of back pain because it is their exposure to vibration that causes them discomfort. When you investigate you may find that something else is the most likely cause of the back pain.

HOW CAN I CONTROL EXPOSURE TO WHOLE BODY VIBRATION IN MY WORKPLACE?

The actions you decide to take should be in proportion to the risk identified. Where exposures are likely to be high and, where other factors such as manual handling or postural strain may be significant, you may need to give higher priority to controlling them. On the other hand, where vibration exposure is likely to be low, and no other risk factors are present, you will probably need to do very little. When you have decided what actions to take, you should also decide who will be responsible for taking them and by when. Record these details in your risk assessment.

Actions for controlling risks could include the following:

Train and instruct operators and drivers.

They should:

- Adjust the driver weight setting on their suspension seats, where it is available, to minimise vibration and to avoid the seat suspension 'bottoming out' when travelling over rough ground;
- Adjust the seat position and controls correctly, where adjustable, to provide good lines of sight, adequate support and ease of reach for foot and hand controls;
- Adjust the vehicle speed to suit the ground conditions to avoid excessive bumping and jolting;
- Steer, brake, accelerate, shift gears and operate attached equipment, such as excavator buckets, smoothly;
- Follow worksite routes to avoid travelling over rough, uneven or poor surfaces.

It is important that workers are appropriately supervised. Effective supervision can help you monitor the effectiveness of the training that people have received, and whether employees have the necessary competence to do the job.

Choose machinery suitable for the job:

- Select vehicles and machines with the appropriate size, power and capacity for the work and the ground conditions;
- Consult your trade association for advice. Vehicle handbooks prepared by good manufacturers will include advice on the risks from whole-body vibration, how to reduce them and how to train drivers to operate vehicles safely and efficiently.

Maintain machinery and roadways:

- Make sure that paved surfaces or site roadways are well maintained, e.g. potholes filled in, ridges levelled, rubble removed;
- Maintain vehicle suspension systems correctly (e.g. cab, tyre pressures, seat suspension);
- Replace solid tyres on machines such as fork-lift trucks, sweepers and floor scrubbers before they reach their wear limits;
- Obtain appropriate advice (from seat manufacturers, machine manufacturers and / or vibration specialists) when replacing a vehicle seat. Seats need to be carefully matched to the vehicle to avoid making vibration exposure worse.

Other measures:

- Introduce work schedules to avoid long periods of exposure in a single day and allow for breaks where possible;
- Avoid high levels of vibration and / or prolonged exposure for older employees, people with back problems, young people and pregnant women;
- Carry out health monitoring.

FURTHER GUIDANCE

- HSE website 'Vibration at Work'
www.hse.gov.uk/vibration/index.htm
- INDG242 Control back-pain risks from whole-body vibration
www.hse.gov.uk/pubns/indg242.pdf
- INDG404 Drive away bad backs
www.hse.gov.uk/pubns/indg404.pdf

These documents are available to download free of charge from www.hse.gov.uk/pubns/books

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