Whole-body vibration

Explain dangers

Whole-body vibration (WBV) is vibration from machines and vehicles that moves into the worker's body through the buttocks, back, or feet. Workers are at the greatest risk of health effects from WBV when:

- The vibration level is high (i.e., acceleration)
- There are long, frequent, and regular exposures
- The vibration exposure has a dominant frequency below 20 Hz
- There are severe shocks or jolts (e.g., driving over potholes or obstacles)

WBV exposure can lead to low back pain, herniated discs, spinal degeneration, neck problems, headaches, muscle fatigue, sleep issues, hearing loss, and gastrointestinal track problems. It can also affect female reproductive organs and peripheral veins (i.e., varicose veins and hemorrhoids).

It can take several years for these health changes to occur. But workers may feel discomfort sooner if there are other ergonomic factors at play.

Per Section 25(2)(h) of the *Occupational Health and Safety Act,* employers must take every precaution reasonable in the circumstances to protect workers. This includes protecting workers from WBV exposure.

Identify controls

The most effective method of preventing vibration exposure is to eliminate the source or remove the worker from exposure (e.g., mechanize or automate tasks, remotely operate equipment, separate the vibrating machinery from the work area, or redesign the task so that vibrating equipment is not used). Where the hazard cannot be eliminated, engineering controls can help to modify the design of the physical workplace to reduce exposure.

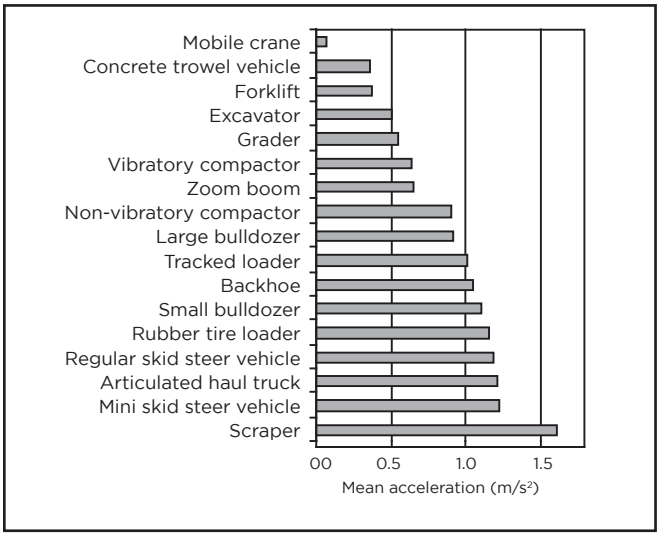
Workers should use the following controls to reduce WBV:

- Perform alternate tasks in addition to the work with vibrating vehicles, mobile equipment, or machinery to reduce your vibration exposure.
- Make sure you have received appropriate training for each vehicle/seat combination, so you can adjust the seat to suit your body dimensions and weight.
- Use relaxed postures while driving a vehicle.
- Adjust seats per manufacturer specifications, typically midway in its vertical travel when you are seated, to avoid end-stops.
- Take a few minutes to walk around when you exit a vehicle before you perform any lifting or heavy physical work.
- Take periodic breaks to leave the vehicle and stretch if you are driving for extended periods.
- Reduce vehicle speeds when driving over potholes and rough terrain (e.g., shale or rock) and when your haulage vehicles are empty.
- Be aware of the health effects of WBV exposure and how to detect and report signs of injury.
- Report poorly maintained vehicles, mobile equipment, and machinery and rough terrain to your supervisor.

Demonstrate

Ask the crew to describe any problems they have had with WBV. Using the vibration chart below, show workers the vibration level of the equipment they will be using.

Vibration magnitude of equipment



NOTE: For eight hours of continuous work, the magnitude of vibration should not exceed 0.5 m/s^2.

Source: ISO 2631—The European Vibration Directive.