

OCCUPATIONAL VIBRATION EXPOSURE

Many workers do not think that their exposure to vibration could be a health hazard. Vibration exposure is more than just a nuisance. Constant exposure to vibration has been known to cause serious health problems such as back pain, carpal tunnel syndrome, and vascular disorders. Vibration related injury is especially prevalent in occupations that require outdoor work, such as forestry, farming, transportation, shipping, and construction. There are two classifications for vibration exposure: whole-body vibration and hand and arm vibration. These two types of vibration have different sources, affect different areas of the body, and produce different symptoms.

Whole-body vibration is vibration transmitted to the entire body via the seat or the feet, or both, often through driving or riding in motor vehicles (including fork trucks and off-road vehicles) or through standing on vibrating floors (e.g., near power presses in a stamping plant or near shakeout equipment in a foundry).

Hand and arm vibration, on the other hand, is limited to the hands and arms and usually results from the use of power hand tools (e.g., screwdrivers, nutrunners, grinders, jackhammers, and chippers) and from vehicle controls.

Occupational health effects of vibration result from extended periods of contact between a worker and the vibrating surface.

What are the possible health effects of chronic whole-body vibration and hand and arm vibration exposure?

Whole-body Vibration:

- Back pain

Hand and Arm Vibration:

- Decreased grip strength
- Decreased hand sensation and dexterity
- Finger blanching or “white fingers”
- Carpal tunnel syndrome

Currently, there are no legal standards that limit exposures to vibration. However, there are many ways employers and workers can help to reduce workers’ exposure to vibration.

Whole-body vibration levels can often be reduced by using vibration isolation and by installing suspension systems between the operator and the vibrating source.

Hand and arm vibration may be more difficult to control, but the proper selection and maintenance of tools can dramatically decrease vibration exposure. Vibration levels associated with power hand tools depend on tool properties, including size, weight, method of propulsion, handle location, and the tool drive mechanism. Primary prevention through eliminating excessive vibration and shocks can be accomplished through better ergonomic tool designs.

Administrative controls can be very important. In high-risk situations, job rotation, rest periods, and reduction in the intensity and duration of exposure can help reduce the risk of adverse health effects. All workers should be advised of the potential vibration hazard and receive training on the necessity of regular tool maintenance and be taught to grip the tools as lightly as possible within the bounds of safety.

Early prevention through exposure monitoring and through the early reporting of initial signs and symptoms of vibration exposure can dramatically reduce chronic health effects.

