

### List whole-body vibration hazards on site

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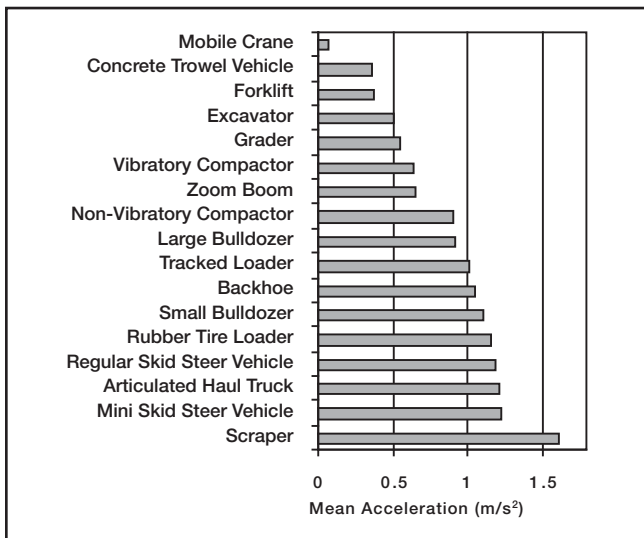
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Heavy equipment operators are exposed to vibration from bulldozers, backhoes, loaders, skid steer vehicles, excavators, and other construction machines (see graph below). The three main sources of whole-body vibration (WBV) from heavy equipment are

- low-frequency vibration caused by the tires and terrain
- high-frequency vibration from the engine and transmission
- shock from running into potholes or obstacles.



*Vibration magnitude for various types of construction equipment. For eight hours of continuous work, the magnitude of vibration should not exceed 0.5 m/s<sup>2</sup>.*

*Sources: ISO 2631; The European Vibration Directive.*

The health effects of WBV have been compared for operators of heavy equipment and for workers in a similar environment but who were not exposed to WBV. With short-term exposure to vibration magnitude at 1 m/s<sup>2</sup>, workers reported symptoms such as abdominal and chest pain, headaches, nausea, and loss of balance. Long-term exposure to WBV can cause serious health problems, particularly related to the spine and the gastrointestinal system.

### Recommendations

Until improved equipment comes on the market, heavy-equipment operators should do the following to reduce WBV:

- Report any poorly maintained equipment. A good suspension system and correct tire pressure will help to reduce vibration.
- If your seat has hydraulic dampers and shock absorbers, adjust the seat to your weight and height.
- Slow down when driving over potholes and rough terrain such as shale or rock.
- Report any rough terrain to your supervisor. Other workers may be able to level or smooth-out the road.
- Get out of your vehicle (in a safe location) every hour for a few minutes to stand, stretch, and give your body a break from vibration.

### Demonstrate

- Ask the crew to describe any problems they have had with WBV.
- Show them the level of vibration of their equipment using the graph.