

## NSW mining and extractives industry

What is vibration?	Why is it a health hazard?	What are the exposure monitoring requirements for the health hazard?	What are the health monitoring requirements for the health hazard?
<p>Vibration can be:</p> <ul style="list-style-type: none"> <li>→ whole body vibration (WBV) where the vibration is transmitted to the body as a whole by its supporting surface</li> <li>→ hand arm vibration (HAV) is where vibration is transmitted to a specific segment of the upper body such as the hand and arm<sup>1</sup>.</li> </ul>	<p>Studies of long-term exposure to vibration show evidence of risks to health, including musculoskeletal disorders involving the lower spine, elbows, neck and shoulders. High WBV exposure increases the risk of lower back pain, herniated discs and early degeneration of the spine. Exposure to vibration may also cause or make worse:</p> <ul style="list-style-type: none"> <li>→ cardiovascular, respiratory, neurological, endocrine and metabolic changes</li> <li>→ digestive problems</li> <li>→ reproductive organ damage in both men and women</li> <li>→ impairment of vision, balance or both.</li> </ul>	<p>As outlined by Safe Work Australia WBV and HAV can be difficult to measure. There is currently no exposure standard for WBV or HAV in Australia, however Safe Work Australia point to the European Union's directive limits.</p> <p>Assessment of vibration needs to be undertaken by a competent person and it is important that the equipment is fit for purpose. For more information with regards to exposure monitoring requirements for vibration please refer to <a href="#">Safe Work Australia: Guide to measuring and assessing workplace exposure to whole body vibration</a> or <a href="#">Safe Work Australia: Guide to measuring and assessing workplace exposure to hand arm vibration</a><sup>2</sup>.</p>	<p>There is no specific health monitoring for this health hazard however the discomfort survey as outlined in Appendix C of the <a href="#">Hazardous manual task code of practice</a> is a positive way to promote worker input and monitor the tasks that can increase the risk of a musculoskeletal disorder. Consideration should be given to the introduction of a health surveillance program<sup>3</sup> that can safeguard the health of workers (including identifying and protecting workers at risk) but also to check the long-term effectiveness of control measures.</p>

<sup>1</sup> Barbara McPhee et al, 2009, Bad vibrations

<sup>2</sup> Safe Work Australia, May 2016, Guide to managing risks of exposure to whole body vibration in workplaces

<sup>3</sup> Health & Safety Executive UK, Hand arm vibration, health surveillance

## Controls for WBV and HAV health hazard

Consider if tasks relating to vibrating plant can be removed from the workplace. For example, introducing remotely controlled mobile plant rather than plant driven by workers.

If it is not reasonably practicable to eliminate the risk then consider implementing the following options in the order they appear below to minimise risks:

1. Substitute the hazard with something safer including purchasing or hiring mobile plant that has lower vibration emission or is more suited to the task e.g. where forklifts are regularly used in unpaved loading yards using a forklift designed for this use rather than one designed for indoor use.
2. Isolate the hazard from people e.g. isolate or dampen a work platform to eliminate or minimise vibration from a motor using rubber mounts and flexible connection.
3. Use engineering controls e.g. install seats on mobile plant designed to minimise vibration, select tyre types suitable for the terrain, and maintain suspension, roadways and tyres.

If, after implementing the above control measures a risk still remains, consider the following controls in the order below to minimise the remaining risk:

4. Use administrative controls e.g. implementing speed limits on gravel or dirt roads or introducing a roster system to minimise how long each worker is exposed to WBV.
5. Use personal protective equipment (PPE) e.g. workers standing on a vibrating platform may benefit from shoes with soles designed to reduce transmission of vibration to the feet. In most cases PPE is unlikely to be effective on its own as a control measure to reduce WBV exposures.
6. Cold weather or conditions may accelerate or worsen the severity of back pain so it is good practice to make sure people working in the cold are provided with warm and if necessary, waterproof clothing.
7. A combination of the controls set out above may be used if a single control is not enough to minimise the risks.