

The *BSO Plus Safety Topic* is a review designed from the BSO Plus agenda. This safety topic is your way to stay current on the safety information over the 3 years between BSO Plus and BSR.

VIBRATION



What is it?

Vibration is the mechanical oscillations of an object about an equilibrium point. The oscillations may be regular (such as the motion of a pendulum) or random (such as the movement of a tire on a gravel road). We can feel vibrations and know that people might be exposed to them, but we cannot determine if what we feel is going to be harmful.

Vibration enters the body from the part of the body or organ in contact with vibrating equipment. When a worker operates hand-held equipment such as a chain saw or jackhammer, vibration affects hands and arms. Such an exposure is called hand-arm vibration exposure. When a worker sits or stands on a vibrating floor or seat, the vibration exposure affects almost the entire body and is called whole-body vibration exposure. Vibration is a risk factor for a number of conditions including injuries to the fingers, hands, back, and organs.

Hand-Arm Vibration

Hand-arm vibration (segmental vibration) exposure affects an organ, part or "segment" of the body. The most widely studied and most common type of segmental vibration exposure is hand-arm vibration exposure which affects the hands and arms. Vibration can cause changes in tendons, muscles, bones and joints, and can affect the nervous system.

Vibrating objects, such as power tools, send vibration through the hands and arms. Exposed occupational groups include operators of chain saws, chipping tools, jackhammers, jack leg drills, grinders and many other workers who operate hand-held vibrating tools.



Hand-Arm Vibration Syndrome (HAVS) symptoms include:

- attacks of whitening (blanching) of one or more fingers when exposed to cold
- tingling and loss of sensation in the fingers
- loss of light touch
- pain and cold sensations between periodic white finger attacks
- loss of grip strength
- bone cysts in fingers and wrists



The development of HAVS is gradual and increases in severity over time. It may take a few months to several years for the symptoms of HAVS to become clinically noticeable.

What is Raynaud's?



Vibration-induced white finger (VWF), or Raynaud's phenomenon, is the most common condition among the operators of hand-held vibrating tools. When a person has VWF, exposure to cold abnormally reduces blood circulation, causing the skin to become pale, waxy-white or purple. The disorder is sometimes called "white finger", "wax finger" or "dead finger." The symptoms of VWF are aggravated when the hands are exposed to cold.

Whole-Body Vibration

Whole-body vibration energy enters the body through a seat or the floor or work surface, and it affects the entire body or a number of organs in the body. Exposed groups include operators of trucks, buses, tractors and those who work on vibrating floors.

Whole-body vibration can cause fatigue, stomach problems, headache, loss of balance and "shakiness" shortly after or during exposure. The symptoms are similar to those that many people experience after a long car or boat trip.

After daily exposure over a number of years, whole-body vibration can affect the entire body and result in a number of health disorders. Studies of bus and truck drivers found that occupational exposure to whole-body vibration could have contributed to a number of circulatory, bowel, respiratory, muscular and back disorders. The combined effects of body posture, postural fatigue, dietary habits and whole-body vibration are the possible causes for these disorders.



How can you protect yourself?

- Using anti-vibration tools and gloves
- Use a minimum strength hand grip that still allows the safe operation of the tool or process
- Avoid continuous exposure by taking rest periods
- Rest the tool on the work piece whenever practical
- Do not use faulty tools and maintain tools properly. Tools that are worn, blunt or out of alignment will vibrate more.
- Consult a doctor at the first sign of vibration disease and ask about the possibility of changing to a job with less exposure
- Limit the time spent by workers on a vibrating surface
- Mechanically isolate the vibrating source or surface to reduce exposure
- Install vibration damping seats
- Many Canadian jurisdictions do not have regulations concerning vibration exposure. However, it is prudent to reduce the level of exposure as much as practical since vibration causes ill health effects.