



WORKERS USING POWER TOOLS MAY BE AT RISK FOR HAND-ARM VIBRATION SYNDROME

By Cari Elofson-Callahan

OSHA Training Institute Education Center
Chabot-Las Positas Community College District

Construction workers who regularly use power tools may be at risk of developing hand-arm vibration syndrome (HAVS). Repeated exposure to both hand-held and stationary tools that transmit vibration can cause the blood vessels in the fingers to collapse, depriving the skin and muscle tissue of oxygen. Early signs of HAVS include infrequent feelings of numbness and/or tingling in the fingers, hands or arms, or numbness and whiteness (blanching) in the fingertips when exposed to cold. As the disease progresses, workers may experience more frequent attacks of numbness, tingling and pain and find it more difficult to use his or her hands. According to the National Institute for Occupational Safety and Health (NIOSH), regular exposure to vibrations from power tools may reach advanced stages in as little as one year, potentially leading to long term disability.

NIOSH recommends that jobs be redesigned to minimize the use of vibrating hand tools and that powered hand tools be redesigned to minimize vibration. Where jobs cannot be redesigned to eliminate vibrating tools, engineering controls and work practices can help minimize exposure.

OSHA suggests that vibration isolators or damping techniques on equipment offer the most effective protection and advises employers to consider the following steps:

- Isolate machine vibrations from the surface if mounted or use vibration-isolation mounts.
- Use damping materials, such as felts, liquid mastics and elastomeric damping sheets applied to the panels, to control vibrating panels of machine housings and guards.
- Make the damping layer the same thickness as the surfaces being treated to maximize the reduction of vibrations.

Recommended work practices to reduce the impact of vibrating power tools include:

- Maintain machines in proper working order. Unbalanced rotating parts or unsharpened cutting tools can give off excessive vibration.
- Arrange work tasks so vibrating and nonvibrating tools can be used alternately.
- Restrict the hours workers use vibrating tools during the workday and allow them to take 10- to 15-minute breaks from the source of the vibrations every hour.
- Train workers about the hazards of working with vibrating tools, including the sources of vibration exposure, early signs and symptoms of hand-arm vibration syndrome, and work practices for minimizing vibration exposure.
- Instruct workers to keep their hands warm and dry and to wear adequate clothing to keep the body temperature stable, since a low body temperature reduces blood flow to the extremities and therefore may trigger an attack of vibration syndrome.
- Advise workers to allow a tool or machine to do the work and not grip a tool too tightly.
- Make sure that workers see a physician promptly if they experience prolonged symptoms of tingling, numbness or signs of blanched or blue fingers.

NIOSH says HAVS can take anywhere from six months to six years to develop, and after the fingers blanch, the condition is irreversible. Awareness and prevention through engineering controls and best work practices are crucial to reduce the risk of developing hand-arm vibration syndrome.

For more information on HAVS, visit

<https://www.osha.gov/etools/woodworking/production/machines-tools> and <https://www.cdc.gov/niosh/docs/83-110/default.html>.