

Ergonomics – *Whole Body Vibration*

The term Whole-Body-Vibration (WBV) refers to mechanical energy oscillations that are transferred to the body as a whole (in contrast to specific body regions). This transfer usually occurs through a supporting system, such as a seat or platform. Typical actions that produce exposures include driving automobiles and trucks, and operating industrial vehicles.

Machinery vibration passing through the buttocks of seated people or the feet of standing people can cause WBV. The most widely reported WBV injury is back pain. Prolonged exposure can lead to considerable pain and time off work, and may result in permanent injury and cessation of all work. This handout briefly covers the issue of worker exposure to WBV and provides recommendations to control the exposure.

Minimizing WBV Exposures:

- Train workers to recognize the warning signs of WBV injury.
- Medically monitor workers who routinely use products associated with WBV.
- Consider rotating jobs to limit worker exposure to WBV, but beware of increasing the number of workers exposed to risk.
- Check, lubricate, and maintain seat, cab, and chassis suspensions according to manufacturer's recommendations.
- Keep suspension seats in vehicles in good working order and replace when worn out. A seat usually has a shorter working life than that of the vehicle.
- Replace vibration dampers in suspension seats when worn out.
- Show drivers how to adjust seats so that they are able to easily reach the pedals.
- Show drivers how to use and adjust back supports.
- Show drivers how to adjust the seat so it provides support for their thighs.
- Show drivers how to adjust the suspension mechanism correctly. A suspension seat is usually adjusted in the middle of the suspension range for a particular driver's weight.
- Balance all machinery to eliminate unwanted vibration.
- Change machinery speed so the resulting vibration frequency is not in a range that affects the human body.
- Use additional mass to shift the natural frequency of the machine.
- Level all roads or tracks that heavy machinery uses as a platform for movement.
- Fill in all potholes that might cause problems for powered industrial trucks.
- Adjust bridge cranes to ensure the rail track of a bridge crane provides a smooth ride.