

Frequently Asked Questions

Q: Is there a seat type that you recommend be purchased to reduce WBV?

A: At this time, there is insufficient information on the effectiveness of seat models. In general, though, seats that are rigidly affixed to the machine will produce a rougher ride than seats with more sophisticated suspension systems. To ensure optimal performance, suspension systems must be adjusted properly for the operator's weight and maintained regularly. Data do indicate that compared to other machines, combine seats appear to do a better job of reducing vertical vibration. However, the differences in driving habits and machine characteristics (weight) may contribute to study results. But, if you have an old seat, there are likely benefits to be achieved in replacing and maintaining a new seat with improved suspension.

Q: Can the way I sit change my WBV exposure?

A: How much a driver leans forward or backward or rotates for forward/backward driving can influence the patterns of whole-body vibration. There is insufficient data to generalize findings on farm machines. Studies of construction vehicle drivers indicate that low back pain risks increased substantially when both WBV and postural stress were high.



UNDERSTANDING WHOLE BODY VIBRATION HAZARDS FOR FARMERS



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What is Whole Body Vibration (WBV)?

Whole body vibration is the shaking and bouncing of a human body riding in a machine.

Vibrations that contribute to WBV occur at extremely low frequencies (1-80 Hz) that are below our range of hearing.

What Are the Health Effects of WBV?

Long-term exposure to WBV causes low back pain, a particularly common complaint among farmers.

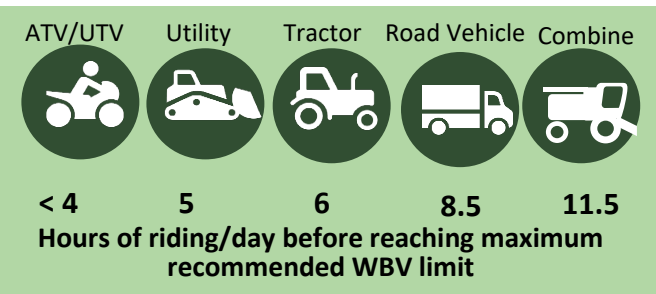


Other effects of WBV include:

- Loss of balance
- Headache
- Dizziness
- Muscle cramping
- Increased blood pressure

How Much WBV Is Too Much?

A recent study of Midwest farmers examined WBV across multiple machine types. Below are the number of exposure hours permitted daily under current guidelines.



What Factors Affect the Amount of WBV in Farm Machines?

1. Machine Type

A heavy combine vibrates a lot less than a small ATV or skid steer loader.

Older or poorly maintained machines may expose the operator to more vibration.

2. Seat Type

A rigidly affixed seat will transfer vibrations from the machine directly into the body. These rigidly affixed seats are common in smaller machines, such as skid steers. The seat suspensions in many modern machines use a combination of springs and hydraulic dampers to absorb some of the vibration. Some seat suspensions use air while others are even more sophisticated: like noise-cancelling headphones, some suspensions can change how it dampens vibrations based on the incoming vibration in real time. The condition of the seat cushion can also affect the seat's effectiveness in reducing the transfer of vibrations to the operator.

3. Driving Speed

As you know, the faster you drive, the more vibrations are transmitted from the surface below. Slower speeds reduce vibration.

4. Terrain

A nice smooth terrain generates less whole body vibration. However, driving over unpaved surfaces is normal on the farm. As the gravel or field becomes more rutted, vibrations increase. Operating at slower speeds over rougher terrain, when possible, can help.

What Can Be Done to Reduce WBV Exposure?

Maintain Equipment

- Keep tires properly inflated
- Maintain the machine suspension system according to specifications
- Include the seat suspension in your overall machine maintenance plan; keep seat parts lubricated and free of dirt
- Replace old or malfunctioning seats

Adjust the Seat

- Adjust the seat suspension properly so the seat doesn't "bottom out" during use
- Adjust the position of the seat to improve posture; just as in a car, controls should be within comfortable reach
- Use a backrest with lumbar support

Be Aware of Terrain

- Slow down when traveling across rough terrain
- Maintain soft-surface roads/tracks
- Alter your routes to avoid rough terrain when possible

Take Care of Your Back

- Avoid long hours of continuous operation
- Avoid twisting your back while operating machine
- Minimize forward leaning posture when driving

Stop and Take Breaks

- Take breaks periodically
- Avoid lifting materials immediately after long periods of driving