

Effect of whole-body vibration on the low back. A study of tractor-driving farmers in north India.

Kumar A, Varghese M, Mohan D, Mahajan P, Gulati P, Kale S.

ABSTRACT

STUDY DESIGN: A retrospective cohort study of tractor-driving farmers (study group) and non-tractor-driving farmers (control group) matched for age, gender, generic/ethnic group, land-holding, and work routines. **OBJECTIVES:** To determine, using magnetic resonance imaging and clinical investigations, the effect of whole-body vibrations on the back in tractor-driving farmers. **SUMMARY OF BACKGROUND DATA:** Low back pain and pathologic changes in the lower backs of tractor drivers have been reported. However, no study with a control group matched for work-related risk factors has been reported. **METHODS:** Fifty tractor-driving farmers were compared with 50 non-tractor-driving farmers matched for age, gender, ethnic group, land-holding, and work routine. Both groups were interviewed for details of work routine, assets held, family profile, and vibration exposure to assess the influence of these parameters on signs and symptoms of backache. Magnetic resonance imaging was done to assess the effect of exposure on whole-body vibration and degenerative changes in the back. Vibration measurements also were done on tractors to observe the actual severity of the vibrations. **RESULTS:** Regular work-related backache was more common among tractor-driving farmers (40%) than among non-tractor-driving farmers (18%, $P = 0.015$). Anthropometric evaluation showed abdominal girth and weight to be significantly higher in tractor-driving farmers ($P = 0.006$ and 0.046 , respectively), whereas while height and arm span were similar between the two groups. Clinical examination for evidence of disc or facet degeneration showed no difference between the two groups. Evaluation of magnetic resonance images of tractor-driving farmers and non-tractor-driving farmers by an orthopedic surgeon, radiologist, and neurosurgeon showed degenerative changes to be similar between the two groups ($P > 0.050$). **CONCLUSIONS:** Tractor-driving farmers report backache more often than non-tractor-driving farmers, but no significant objective differences on clinical or magnetic resonance imaging evaluation were found between the two groups.