

Whole Body Vibration and Low Back Disorder among Saskatchewan Farmers: A Prospective Cohort Study

Authors : Samuel Kwaku Essien, Catherine Trask, Niels Koehncke, Brenna Bath

Abstract : Background: Low back disorder (LBD) is the most common musculoskeletal problem among farmers, with higher prevalence than other occupations. Operators of tractors and other farm machinery such as combines or all-terrain vehicles (ATV) can have considerable cumulative exposure to whole body vibration (WBV). Although there appears to be an association between LBD and WBV, lack of prospective studies makes the relationship between LBD and WBV unclear. Purpose: This study investigates the association between WBV and LBD among Saskatchewan farmers using a prospective cohort study Methods: The Saskatchewan Farm Injury Cohort Study Phase I (2007) and II (2013) data were used. Baseline data were collected via postal questionnaire on accumulated yearly tractor, combine, and ATV use as well as several covariates to support a biopsychosocial model of LBD. Follow-up data on musculoskeletal symptoms were collected for the 6-year with sample size of 1149. Questions on 'low back trouble' (ache, pain, discomfort) experienced in the last 12 months answered by farmer participants as 'yes' or 'no'. A GEE-modified Poisson approach was performed using SPSS 22 and SAS 9.4. Results: Twelve-month Prevalence of LBD was 59.8%. In multivariate analysis of the 6-year follow-up, LBD was associated with ATV operation and tractor operation, with a dose-response relationship for annual accumulated tractor operation. Although combine operation ≥ 61 hrs/year was related to LBD in bivariate analysis, this difference did not persist after adjustment for confounder. Age was found to be a confounder in relationship between WBV and LBD and no interactions were found. Conclusion: Longer annual tractor operation and older age are important predictors of LBD symptoms in farmers. Future research involving direct measurement can help identify appropriate prevention strategies.

Keywords : agriculture, low back disorder, low back pain, occupational health

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