

November 2015 Alive & Well Updates: This and That

Protocol of a test of hearing health education programs for farm and rural youth. McCullagh, MC; Banerjee, T; Yang, J. BMC PUBLIC HEALTH Volume: 15 Article Number: 1061. OCT 16 2015.

Background: Farm and rural youth have frequent exposure to hazardous noise on the farm and recreationally, and have an increased prevalence of noise-induced hearing loss. There is a lack of programs to prepare this high-risk population to use hearing conservation strategies.

Methods: The purpose of this project is to test innovative hearing health education programs delivered to a large target group and to determine the effectiveness and sustainability of these programs in promoting hearing health among farm and rural youth. Specifically, this project includes: a) an interactive face-to-face informational program alone, b) an interactive face-to-face informational program followed by an Internet-based booster, and c) a no-intervention control. Sites will include selected affiliates of a major farm youth safety education organization. Data will be collected at baseline, 3, and 12 months. A linear mixed model will be used to compare the effectiveness of the three interventions over time. Descriptive statistics will be used to compare program costs and sustainability ratings.

Discussion: Outcomes of this project will provide knowledge necessary to implement quality and cost-effective services to farm and rural youth, a high-risk and underserved population, that can be implemented and sustained after the study is completed.

A Pilot Study of Gait Function in Farmworkers in Eastern North Carolina. Nguyen, HT; Kritchevsky, SB; Foxworth, JL; Quandt, SA; Summers, P; Walker, FO; Arcury, TA. JOURNAL OF AGROMEDICINE 20(4): 427-433 OCT 2 2015.

Farmworkers endure many job-related hazards, including fall-related work injuries. Gait analysis may be useful in identifying potential fallers. The goal of this pilot study was to explore differences in gait between farmworkers and non-farmworkers. The sample included 16 farmworkers and 24 non-farmworkers. Gait variables were collected using the portable GAITRite system, a 16-foot computerized walkway. Generalized linear regression models were used to examine group differences. All models were adjusted for two established confounders, age and body mass index. There were no significant differences in stride length, step length, double support time, and base of support; but farmworkers had greater irregularity of stride length ($P = .01$) and step length ($P = .08$). Farmworkers performed significantly worse on gait velocity ($P = .003$) and cadence ($P < .001$) relative to non-farmworkers. We found differences in gait function between farmworkers and non-farmworkers. These findings suggest that measuring gait with a portable walkway system is feasible and informative in farmworkers and may possibly be of use in assessing fall risk.

Characteristics of Work- and Non-work-Related Farm Injuries. Gross, N; Young, T; Ramirez, M; Leinenkugel, K; Peek-Asa, C. JOURNAL OF RURAL HEALTH 31(4):401-409 FALL 2015.

Purpose: Farm-related injuries are an important public health problem in agriculture because of their impact on individuals, families, and farm operations. While surveillance programs such as the Census of Fatal Occupational Injuries is available to track fatal agricultural injuries, more work is needed to examine the burden of nonfatal agricultural injuries.

Methods: Data involving agricultural injuries were collected from the Iowa Trauma Registry from January 1, 2005, through December 31, 2011. A total of 2,490 trauma patients were found to have been classified as having a farm-related injury. These nonfatal farm-related injuries were compared by work-relatedness, injury severity score, length of hospital stay, and hospital discharge status. Also reported are the age and gender of the trauma patients, as well as the population of the county in which the injury occurred.

Results: In our analysis, we found that work- versus nonwork-relatedness had little effect on injury severity, but that work-related injuries did result in longer average hospital stays. Injuries occurring in counties of lower population size tended to be slightly more severe and be more likely to have nonroutine discharges.

Conclusions: Farm environments pose hazards which are persistent for those working and living on the farm, regardless of whether or not they are engaged in work-related activities. Public health prevention approaches that consider work and nonwork farm environments may be helpful in designing interventions to reduce injury.

The Association of Sleep Loss and Balance Stability in Farmers. Siu, KC; Huang, CK; Beacom, M; Bista, S; Rautiainen, R. JOURNAL OF AGROMEDICINE 20(3) Special Issue:327-331 Published: JUL 3 2015.

Sleep deprivation has been linked to injuries, illnesses, and reduced performance measures. Yet, it is unclear how sleep loss contributes to the high rates of injuries and falls in agriculture. In this study, the authors evaluated sleep loss and quantified its association with balance in five farmers, who wore an ActiWatch to record their sleeping patterns in six repeated weekly observation periods. Acute sleep loss was computed as the net sleep (sleeping hours the night before balance testing - average sleep hours during the week). All farmers performed four balance tests on either one foot or both feet and with eyes open or closed. Balance was measured using a pressure mat to monitor the change in center of pressure (CoP) of the feet in anteroposterior (AP) and mediolateral (ML) directions. Spearman's rank correlation coefficient indicated balance outcomes were strongly and negatively correlated with the net sleep ($P < .05$). As the net sleep decreased, farmers became less stable, particularly indicated by an increase in the area, total displacement, and deviations of CoP in both AP and ML directions while standing on both feet with eyes open. Fisher's exact test showed an association between the CoP in AP direction and the net sleep ($P = .020$, odds ratio [OR] = 7.37). Thus, the odds of having reduced balance stability were 7.4 times higher when farmers slept less than their average hours during the night prior to the balance test. These results suggest that acute sleep loss impacts balance stability that may lead to falls. Understanding the association of sleep loss and balance stability is important in prevention of agricultural injuries.