

Hi Everyone,

This month's Update is about falls from heights. Ladders, roofs, catwalks, and farm equipment are all opportunities for falling and injury. The busy harvest season is just around the corner and there will be a lot of climbing to get ready! As always, please feel free to contact me with questions, comments, or requests for full articles.

Thank you,

Ralph

[ralph-altmaier@uiowa.edu](mailto:ralph-altmaier@uiowa.edu)

## September 2019 Update from the Field: Falls from Heights

**Falls From Agricultural Machinery: Risk Factors Related to Work Experience, Worked Hours, and Operators' Behavior.** (2018). Caffaro, F., et al. *Human factors* 60(1): 20-30.

**Objective** We investigated the risk factors for falls when egressing from agricultural tractors, analyzing the role played by worked hours, work experience, operators' behavior, and near misses. **Background** Many accidents occur within the agricultural sector each year. Among them, falls while dismounting the tractor represent a major source of injuries. Previous studies pointed out frequent hazardous movements and incorrect behaviors adopted by operators to exit the tractor cab. However, less is known about the determinants of such behaviors. In addition, near misses are known to be important predictors of accidents, but they have been under-investigated in the agricultural sector in general and as concerns falls in particular. **Method** A questionnaire assessing dismounting behaviors, previous accidents and near misses, and participants' relation with work was administered to a sample of Italian tractor operators (n = 286). **Results** A mediated model showed that worked hours increase unsafe behaviors, whereas work experience decreases them. Unsafe behaviors in turn show a positive association with accidents, via the mediation of near misses. **Conclusions** We gave a novel contribution to the knowledge of the chain of events leading to fall accidents in the agricultural sector, which is one of the most hazardous industries. **Applications** Besides tractor design improvements, preventive training interventions may focus on the redesign of the actual working strategies and the adoption of engaging training methods in the use of machinery to optimize the learning of safety practices and safe behaviors.

---

**Nonfatal tractor-related injuries presenting to a state trauma system.** (2015). Swanton, A. R., et al. *Journal of Safety Research* 53: 97-102.

**Purpose** To identify tractor-related injuries using data from a statewide trauma system, to characterize the mechanisms of nonfatal tractor-related injury, and to determine which injuries are associated with higher severity injury. **Methods** A retrospective observational study was conducted using the Iowa State Trauma Registry to identify cases of nonfatal tractor-related injuries over an 11-year period from 2002 to 2012. Frequency of injury was reported by age, sex, severity, and nature. Injuries were classified by mechanism and a polytomous regression model was used to predict injury severity adjusting for sex and age. **Results** Five-hundred thirteen nonfatal tractor-related injuries were identified with 18% classified as severe. Injuries were most frequent among males and among those  $\geq 45$  years of age. Rollovers were the most frequent mechanism of both total (25%) and severe injury (38%), although the frequency of injury mechanism varied by age. Falls were the next most frequent mechanism of injury (20%) but resulted in fewer high-severity injuries. Collision (adj OR = 1.89, 95% CI = 1.01–3.51), rollover (adj OR = 2.03, 95% CI = 1.21–3.40), and run over/rolled on (adj OR = 2.06, 95% CI = 1.17–3.62) injuries were significantly associated with higher injury severity. Advanced age was also a significant predictor of higher severity injury (adj OR = 1.82, 95% CI = 1.06–3.12). **Summary** Mechanisms of nonfatal tractor-related injuries are heterogeneous, differ by age, and are associated with varying level of severity. **Practical Applications** This work shows the burden of nonfatal tractor injuries on a rural state trauma system. These findings also demonstrate the heterogeneous nature of nonfatal tractor injuries and underscore the need for a multi-level approaches to injury prevention.

---

**Take Your Safety Into Your Own Hands. Do You Know What to Check For?** American Ladder Institute  
[https://cdn.ymaws.com/www.americanladderinstitute.org/resource/resmgr/Ladder\\_Safety\\_Checklist/ALI\\_10103-16\\_LadderSafetyChe.pdf](https://cdn.ymaws.com/www.americanladderinstitute.org/resource/resmgr/Ladder_Safety_Checklist/ALI_10103-16_LadderSafetyChe.pdf)