

★ ★ ★ ★ Senior Safety & Mobility

FACT SHEET

Associations Between Falls and Driving Outcomes in Older Adults: A Systematic Review and Meta-Analysis

Background

- Driving is an important indicator of mobility and well-being for older adults
- A fall is defined as an event in which a person comes to rest inadvertently on the ground or floor or other lower level
- Prior work suggests that falls may increase the risk of subsequent motor vehicle crash (MVC) or other adverse driving outcomes
- Falls have the ability to impact driving in three ways:
 1. Falls may cause physical injury, limiting an older driver's ability to use the steering wheel, brake pedals, or otherwise perform essential driving maneuvers; *e.g.* a wrist fracture
 2. Falls may indirectly lead to reduced functional ability; *e.g.* increase in fear of falling leads to more limited physical activity, which may lead to physical and cognitive de-conditioning – "use it or lose it"
 3. Falls may heighten self-awareness of age-related physiological changes or precipitate a fear of injury; *e.g.* may lead to self-restricting driving behaviors like reduced mileage and day-driving only

Objective

- To better understand the research literature on the associations of falls in older drivers with subsequent MVCs, crash-related injuries, and driving performance and behavior

Methods

- A systematic literature review, including a narrative and a meta-analysis was conducted on previously published studies related to falls and ensuing driving behaviors
 - Quantitative data for drivers aged 55 and older
 - Cohort, case-cohort, case-control, and time-series designs
- Fifteen studies met the inclusion criteria
- This study is part of the AAA Foundation for Traffic Safety's LongROAD study effort, a national, prospective cohort study designed to examine crashes, driving, and medical issues relevant to drivers 65 and older

Continued



Seniors face serious driving safety and mobility issues.

Key Findings

Increased risk of MVC

- A fall history significantly increased the risk of subsequent crashes
 - Older adults who had fallen were 40% more likely to experience a subsequent motor vehicle crash than older adults who had not fallen
 - Many included studies adjusted for age and other factors such as neuromuscular function, vision, or cognition, suggesting that falls independently adversely affect drivers' functional abilities
- Limited evidence suggests that falls may also be associated with MVC-related injuries, hospitalizations, and deaths

Inconclusive evidence

- There was no evidence that falls were associated with:
 - Conditional driving avoidance
 - Avoidance of driving under certain conditions; e.g. at night, on highways, or alone
 - Driving difficulty
 - A self-reported measure, asking subjects whether they had difficulty driving under certain conditions, while performing certain tasks; e.g. turning left
 - Driving frequency, distance, or space
 - Driving cessation

Implications

- Falls in older adults are associated with a significantly increased risk of subsequent MVCs
- Safe mobility, both for walking and driving, is important for older adults' well-being and health. These findings support the importance of fall prevention efforts
- Fall prevention programs may prevent MVCs, either by reducing injuries that can negatively impact safe driving or mitigating unnecessary self-restriction of driving, which could result in deteriorating driving skills
- SeniorDriving.AAA.com contains resources for senior drivers on strength and flexibility exercises - AAA.com/fitness

For more information on this study and the AAA Foundation's other traffic safety research and materials, please visit AAAFoundation.org.

Established in 1947 by AAA, the AAA Foundation for Traffic Safety is a not-for-profit, publicly funded, 501(c)(3) charitable research and educational organization. The AAA Foundation's mission is to prevent traffic deaths and injuries by conducting research into their causes and by educating the public about strategies to prevent crashes and reduce injuries when they do occur. This research is used to develop educational materials for drivers, pedestrians, bicyclists and other road users. Visit www.AAAFoundation.org for more information.

March 2016

