



# **Encyclopedia of Transportation: Social Science and Policy**

## **Elderly Driver Safety Issues**

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Elderly drivers have higher accident rates than other age groups and are considerably more vulnerable to injury. Driving at an advanced age carries added risks due to limitations to perceptual, physical, and cognitive functioning. Specific medical conditions and the use of some medications can also increase the risk of accidents. The increase in the number of older drivers poses ethical questions at the level of public policy, as the objective of ensuring road safety must be balanced with the need to provide older people with the means to have independent mobility, which is linked to life satisfaction in this age group. Regulations regarding driving license renewal and assessment of driving ability are in effect in most countries. However, policies have also been designed to promote the inclusion of drivers in a safe road environment, through education and training. Developments in vehicle and road design may also contribute to ensure the safety of older drivers.

As a result of the increase in life expectancy and decline in birth rates, a large proportion of the population in developed countries is of an advanced age. General improvements in health and income also mean that more elderly people are now driving, both in absolute numbers and as a proportion of all drivers, while sociocultural changes have led to an increase to the proportion of older women drivers. In most countries the accident rate of elderly drivers is relatively high but lower than the rate of the youngest drivers (aged 16–24). In addition, because older people drive less than younger drivers, they are responsible for a smaller number of accidents. Nevertheless, elderly drivers are a special group of concern in terms of road safety because they are more vulnerable to injuries. In fact, the probability of long-term disability and mortality tends to be much higher for older drivers involved in car accidents than for younger drivers, mainly because of their frailty. Safety issues are especially relevant for the older elderly (over age 75).

The cause of accidents involving elderly drivers tends to be specific to this age group. A large proportion of accidents can be explained by errors and lapses, such as failure to stop at red lights and stop signs, to give or yield right-of-way, and to respect other road signs. Other common causes are vehicle maneuvers in dangerous or confusing road environments such as sinuous road alignments, multilane roads, and complex intersections.

On the other hand, statistics and surveys show that older drivers adapt their driving patterns to compensate for some of the limitations they face. This includes driving slower, allowing wider gaps for merging with traffic, and avoiding driving in complex road environments, at night, under poor meteorological conditions, and on roads in poor state of repair or with wet and icy surfaces. Factors causing accidents in other age groups, such as excessive speed and driving under the influence of alcohol and drugs, are relatively less important in the group of older adults.

## Functioning

There are several factors limiting the driving ability of elderly people. The aging process reduces the individuals' perceptual functioning. The most researched aspect regards losses in visual abilities. Older adults face limitations in terms of contrast sensitivity, night vision, ability to perceive detail, reduced visual field, depth and motion perception, and recovery time from exposure to bright lights. These factors influence the drivers' perception of road signs and of other elements of the road environment and limit their awareness and assessment of speed and distance from other vehicles, especially when compounded with limitations in other sensory processes such as hearing. Limitations in visual abilities also intensify the accident risk caused by driving at night or in foggy or rainy weather.

Physical functioning is also limited in older adults. This includes aspects such as strength, flexibility, and coordination. The ability to move parts of the body is crucial to driving. Restrictions to the motion of the neck increase the difficulties in seeing road signs and in assessing the different elements of the road environment. Joint stiffness may also limit the speed and coordination of movement. This may reduce control of the vehicle, such as the ability to use the steering wheel to veer the vehicle and to use feet to control the accelerator and brake pedals. All these aspects can influence elderly drivers' reaction times to adapt to unexpected events on the road, a factor that is crucial in many road accidents.

The limitations to perceptual and physical functioning become more relevant for driving safety when in conjunction with limitations to cognitive functioning. Older drivers are more likely to suffer impairments in the capacity for concentration, speed of information recognition and processing, and short-term memory. Losses of attention and problems in sorting different types of information can also cause problems due to the distraction caused by the presence of disparate elements competing for the driver's attention on the road, such as road signs and other vehicles, while controlling the vehicle. This increases the probability of misjudgments leading to making wrong decisions and prolongs reaction time.

Elderly drivers are also at an increased risk due to the effects of the progression of specific medical conditions. Dementia and other neurological conditions are related to the probability of making errors while driving, as they contribute to the loss of attentiveness and failures to obey traffic rules and make the right decisions. Conditions impairing visual perception, such as cataracts and glaucoma, also have a marked effect on accident risk, as they contribute to the loss of visual acuity and the reduction of the visual field. Conditions impairing flexibility, such as arthritis, are also relevant because they affect the ability of the driver to control the vehicle. More research is needed on the effects of other conditions that are relatively more common in old age, such as metabolic, cardiovascular, and cerebrovascular diseases. More knowledge is also needed about the way that some of the medications used to treat some medical conditions prevalent in old age interfere with driving, especially the interacted effect of several medications.

## Policy

Whether public policies should or should not promote driving in old age is an ethical question. The increase in the number of elderly drivers increases the risk of accidents for all road users, which has substantial costs for society as a whole. The problem is bound to become more serious in the future as the number of active older elderly tends to increase. On the other hand, driving cessation has important psychosociological aspects. Driving allows for independent mobility, which is a critical component of the physical, mental, and social well-being in this age group. In dispersed suburban and rural communities, the car is also the major and sometimes only mode of transportation. The ability to drive also contributes to freedom and autonomy to a great degree. Elderly people who cease to drive may therefore feel they are losing independence and suffer role loss. Public authorities should thus consider the balance between the promotion of driving in old age and the application of policies providing alternatives for the lost mobility when individuals cease to drive, including the supply of public transportation, decentralization of facilities, and improved communications.

## Regulations

Most countries have regulations regarding the driver's license renewal of older individuals.

The issue is often subject to public discussion as there is no consensus regarding the specific role of age in accident risk. As such, regulations are not based exclusively on the driver's age and involve a mandatory assessment of their driving ability. However, the frequency of this assessment usually increases with the age of the driver. The evaluation process usually includes tests of visual acuity and other relevant abilities and may also include on-road driving assessments.

The evaluation of the ability to drive can also be made at the level of general clinical screening, usually in the case when a specific medical condition is identified. Guidelines for this assessment are in many countries provided by medical associations and transportation authorities. The *Physician's Guide to Assessing and Counseling the Older Driver*, published by the American Medical Association and the National Highway Traffic Safety Administration, is one example.

The application of strict regulations for renewal of driver's licenses for elderly people is often controversial due to the psychological factors involved in cases where the individual fails to pass the test; this may trigger depression and accelerate physical decline. Critics of this type of regulation point to the fact that in many cases there is opportunity for attempting a correction of the impairments in perceptual and physical impairments that limit driving, while acknowledging that psychological support is also needed when the only option for the regulator is to revoke a driver's license.

## Education and Design

Safety for driving older adults can be enhanced by education and training programs organized by public authorities and other organizations. The content of these programs usually includes an update on traffic laws, vehicle characteristics, and road environment, as these elements may have changed since the time when the individual learned how to drive. The programs may also include training regarding the specific limitations on driving caused by old age and tips to help drivers to develop strategies for identifying hazardous road conditions and driving behaviors. Training programs can also help individuals to prepare for driver license renewal tests and cover practical issues regarding the necessary procedures.

The safety of older drivers can also be enhanced by improvements in both vehicles and road designs. Vehicle manufacturers can add equipment to address specific old-age-related limitations, such as adjustable steering and brake and accelerator pedals, flexible and comfortable seating and safety belts, and larger windows and rearview mirrors. Devices such as geographic information systems and night vision enhancement can also provide useful information to help the driver to safely navigate the roads and steer the vehicle. The design of roads should also take into consideration the needs of elderly drivers, especially in the neighborhoods where the majority of the population is elderly. Important factors include lighting at intersections and the size and legibility of road signs and markings. Finally, the application of some traffic rules for all drivers, such as the mandatory use of daytime headlights, may also contribute to the safety of elderly drivers.

- drivers
- roads
- elderly
- motor vehicles
- visual acuity

- accidents
- vehicles

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**See Also:**

- [Automobile Accidents and Prevention](#)
- [Automobile Drivers, Elderly](#)
- [Elderly and Disabled Travelers](#)
- [Traffic Safety](#)
- [Travel Patterns of the Elderly](#)

**Further Readings**

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