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Editor's Note: See "Magnifiers,  
Great and Small," this issue, for  
more information about CCTVs and  
handheld magnifiers. ■

## Feature

### Driving with Low Vision

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Boston, Massachusetts

Everyone has the right to mobility--the ability to get from one place to another. Driving a car, however, is not a right--it is a privilege that can be granted, mediated, and revoked by the state via the state's department of motor vehicles (DMV). While

every state has a minimum vision test to pass for licensure, states vary on requirements for a driver's vision capabilities. In light of non-uniformity across states, the initial decision of driving privileges made by the DMV is NOT the final word of the law. A significant amount

of the decision whether or not you should drive lies in your own hands. Many people have challenged states that have denied them the driving privilege and won. However, before embarking on this endeavor, you need to know everything about your rights and limitations.

One of the most important steps to take initially is truthful introspection. It is critical when you are seeking permission to drive that you understand your own vision-imposed limitations, feel comfortable and safe with your ability to compensate for the vision loss, and do not feel that your driving will put other drivers, bikers, or pedestrians in danger.

A low vision specialist is a doctor who has experience understanding the difficulties that arise when a person loses one of the multiple dimensions of vision. A low vision specialist will be indispensable in helping you understand your vision impairment in terms of what

challenges it will present and in suggesting appropriate visual aids.

A visual aid refers to any tool that allows the visual system to function better. Millions of drivers use driving glasses to compensate for difficulty focusing on objects in the distance, and all drivers use a rear view mirror to overcome the lack of eyes in the back of their heads. These two devices are common visual aids that are allowed by law and used widely on the road. For individuals with specific low vision conditions, other visual aids exist.

People who are concerned about their vision and its implication on driving must understand that vision is not accurately represented by a numerical scoring system. Rather, it is the way an individual is able to cope with a specific visual deficiency that has implications on how that person will perform in a driving situation. Visual acuity (assessed by reading letters from a

chart) is only one aspect of visual function. People with central field loss or reduced visual acuity can benefit from the use of bioptic telescopes. A bioptic telescope is an optical telescope mounted on a lens of a pair of spectacles. There are many variations of bioptic telescopes, and different people prefer different types. The Galilean and Keplerian are popular models. All bioptic telescopes have different advantages and disadvantages and, together with your doctor, you should consider which type is best for you. Bioptic telescopes are accepted as driving visual aids in many states.

People with peripheral field loss or with "tunnel vision" can benefit from the use of a number of optical devices for field expansion. These devices include reversed (minifying) telescopes, various types of prism and mirror systems, and electronic navigation devices. Although intended for help with

walking, some of these devices are now being evaluated for driving.

Before learning to drive with your visual aid, you must first learn to use the aid during walking and also develop skills in using the visual aid on the road as a passenger. Pre-driving training should include learning to judge the distances of stationary and moving objects and visual memory training. Your actual driving training sessions should include: road positioning, using bioptic and carrier lenses properly, responding properly to changing levels of illumination, using dashboard instruments, driving in traffic, driving at night (if legal), monitoring speed control, driving on different types of roads, crossing road obstacles, accommodating emergency vehicles and pedestrians, using colors and shades, and reducing the effects of vibration. "I used a bioptic telescope for two years as a passenger, and I was amazed at how little I actually knew about

using it properly until I was shown (how to use it) by a professional instructor,” said M.S., a driver from New Hampshire who uses a bioptic telescope. A list of qualified rehabilitation professionals can be obtained from the Association for Driver Rehabilitation Specialists. In choosing an instructor, ask if the instructor has experience training people who have the same type of vision impairment, request references, get a feel for the character of the instructor, and inquire about total cost and length of the training.

The amount of training required is not well defined. There are some studies that show no difference in performance between those who have had extensive training and those who have had only a few hours of training. “It took me about two hours to learn how to use the bioptic telescope properly on the road, and after a training period of about 3 weeks

(about 15 hours) I felt confident enough to test and drive,” reported one bioptic telescope driver. It remains clear that extensive practice makes a difference in confidence and performance in driving with these visual aids.

No two states have an identical set of regulations with respect to visual requirements for low vision drivers. Failure to pass the customary vision test is not sufficient in itself to demonstrate that an individual cannot drive a car safely. Studies have shown that there is very little correlation between safe driving and the screening tests. Due to inconsistency in state legislation of vision requirements for driving, you might walk into the DMV of two different (even neighboring) states and find two different decisions about your ability to drive with visual impairment. For example, in some states applicants for a driver’s license are allowed to submit the results of a vision screening test conducted

by an eye care professional; 34 states officially allow driving with bioptic telescopes, although only 14 of them allow driving at night with the devices; just 36 states test and have requirements for peripheral visual field, while only 4 states test depth perception. Only California, Delaware, Nevada, North Dakota, and Texas require a physician to report a physical/mental disability to the DMV, but in at least 14 states, a license can be suspended upon report from a doctor.

Millions of people in the US with reduced vision severe enough to initially fail a driving license vision test do continue to drive safely and legally with the help of visual aids, counseling, and training.

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Aaron J. Mandel and Dr. Robert B. Goldstein are based at the Schepens Eye Research Institute, an affiliate of Harvard University. For

more information about the institute visit [www.theschepens.org](http://www.theschepens.org). For more information about the work done by this research group, which focuses on mobility and low vision driving (among other issues), visit [www.eri.harvard.edu/faculty/peli/driving/drcontent.htm](http://www.eri.harvard.edu/faculty/peli/driving/drcontent.htm).

Much of the material in this article can be found in **DRIVING WITH CONFIDENCE: A PRACTICAL GUIDE TO DRIVING WITH LOW VISION** by Peli and Peli published in 2002 by the World Scientific Publishing Company, Singapore, New Jersey, London and Hong Kong, which contains a state-by-state list of vision requirements for driving. To order the book, \$28 hardcover/\$18 paperback, contact the publisher: World Scientific Publishing Co., Inc., 27 Warren Street, Suite 401-402, Hackensack, NJ 07601; Phone: 800-227-7562; E-mail: [wspc@wspc.com](mailto:wspc@wspc.com); Web site: [www.worldscibooks.com](http://www.worldscibooks.com).

com/medsci/4769.html.

## Resources

### **The Association for Driver Rehabilitation Specialists**

P.O. Box 49  
Edgerton, WI 53534  
608-884-8833  
[www.driver-ed.org](http://www.driver-ed.org)

This organization maintains resources for people with disabilities including a list of certified driving rehabilitation specialists.

### **Association for Education and Rehabilitation of the Blind and Visually Impaired**

P.O. Box 22397  
Alexandria, VA 22304  
703-823-9690  
[www.aerbvi.org](http://www.aerbvi.org)

This international organization is dedicated to supporting individuals who have visual impairments with education, advocacy, and scientific research funding.

### **AARP 55 Alive/Mature Driving**

601 E. St., NW  
Washington, DC 20049  
888-687-2277

[www.aarp.org/55alive/home.html](http://www.aarp.org/55alive/home.html)

This organization offers information and a driver safety program, which is a refresher on driving skills, and helps drivers determine if a visual impairment is compromising their ability to drive. ■