



Information about Albinism

National Organization for Albinism and Hypopigmentation

Albinism and Driving

Many people with albinism have low vision and want to drive a car. The vast majority of driving decisions are based upon vision. This bulletin discusses controversies about the minimum visual acuity necessary for safe driving, and about driving with bioptic telescopes, to help people with albinism make decisions about driving. It also addresses ways of learning to drive and seeking a license for those who cannot pass the standard driver license vision screening test.

The Decision to Drive

It is critical that any low vision driver has a strong sense of responsibility and willingness to voluntarily exercise good judgment by restricting themselves from driving in situations they know to be unsafe. It is a fact, regardless of whether it is fair or not, that all low vision drivers are judged by the safety record of the entire group. It is important for drivers with albinism to drive in the most responsible way possible so all low vision drivers will not be in jeopardy of losing their driving privilege.

Driving is not for everyone with albinism, and neither is it for everyone in the general population. Some people don't have the physical or mental ability, the temperament, the desire, or the need to drive. If you have albinism, the decision to drive is a very personal one that must be made collaboratively between you, your eye doctor and your state Department of Motor Vehicles.

Driving Restrictions

Many persons with albinism have central visual acuity in the range of 20/70 to 20/200 with standard corrective lenses. The visual acuity requirements or screening standards used in the United States for driving without restrictions ranges from 20/30 to 20/70, and the average is 20/40. Some states will accept a visual acuity of 20/100 with corrective lenses for a restricted driver's license with the recommendation of an eye doctor and demonstration of the ability to operate a motor vehicle safely.

Restrictions imposed upon the license may limit the driver to a geographic area or particular routes, and may limit driving to certain hours of the day. The license may require a particular vehicle using special equipment or devices. The driver license agency may require more frequent and rigorous testing or special training that is not required of other drivers.

In order to meet the state requirement, some type of magnification device may be necessary, such as a bioptic telescope or Telecon system (a combination of contact lenses and glasses) to increase the corrected visual acuity.

The American Optometric Association endorses "individual evaluation of individuals wearing spectacle-mounted bioptic telescopes for driving." However, the American Association of Motor Vehicle Administrators passed a resolution in 1983 to ban all bioptic drivers in all states. In 1984, the US Department of Transportation expressed concern that some state departments of transportation "discriminate against visually handicapped individuals who wear bioptic

lenses.” The DOT position is “that the use of not automatically disqualify him or her from being licensed to drive, [and] that all driver license applicants, whether or not they wear bioptic lenses, should be provided the opportunity to take tests of vision, knowledge and driving skills.” Even though the AAMVA resolution appears to be contrary to the position of the DOT, the use of bioptic telescopes is still not legal in some states.

In an effort to address the question of the minimum acuity necessary to drive safely, studies have been conducted as early as 30 years ago comparing static visual acuity, which is measured in a stable environment, versus dynamic visual acuity, which is measured in an interactive environment that approximates the driving task. Although dynamic visual acuity tests may predict driver safety more accurately, most states use static tests because of time and cost factors.

Most states will permit persons with low vision to substitute documentation from an eye doctor for the standard vision test. The Department of Motor Vehicles will want specific information about visual function such as:

- corrected and uncorrected visual acuity;
- peripheral visual fields;
- stability of eye condition;
- depth and color perception;
- ability to coordinate hand, neck, and eye movement;
- contrast sensitivity, glare recovery, and luminance.

Low Vision and Driving

Depressed central visual acuity, or low vision, is one of the characteristics of albinism. However, albinism is a genetic condition that is stable, so the vision does not deteriorate over time. People with albinism usually have normal color perception and near normal peripheral visual fields. In addition, albinism is not usually accompanied by scotomas (blind spots) within the visual field.

Even the normally sighted driver does not resolve details on a continuous basis at the 20/20 acuity level while driving. The driver uses 20/20 acuity only as a response to low resolution stimuli. Adequate peripheral vision is more important than central acuity, and persons with tunnel vision are unable to drive safely even if they have 20/20 central acuity.

The person with albinism, and all persons with low vision who drive, must compensate for a reduced safety margin, which results from a delay in spotting hazards. Studies of visually impaired drivers, a group that includes persons with albinism, found that these drivers had an accident rate 1.9 times higher than that of non-disabled drivers. But these same studies found that visually impaired drivers had an accident rate only half that of other medically disabled driver groups such as those with orthopedic disabilities, hearing impairments and seizure disorders. It was also found that visually impaired drivers had fewer citations than non-disabled drivers.

The person with albinism, like all drivers, must remember that driving is a privilege and not a right. DMV records indicate that the characteristics of drivers who are most likely to be involved in an accident are those who are impulsive, emotionally unstable, overly aggressive, angry, inattentive, slow to react, substance abusers, risk takers, inexperienced or new drivers, teenagers younger than 18, or seniors over age 75.

Driving Skills

The licensing agency will use the same performance standards to evaluate the low vision driver as it uses to assess driving skills in the general population. These will generally include vehicle speed control, shifting and braking, depth and spatial perception, steering, use of mirrors, backing up and parking, knowledge of rules of the road, and courtesy.

Drivers with albinism must also learn to effectively compensate for their low vision and may benefit from the following tips:

- Use non-visual cues.
- Keep eyes moving and be alert.
- Check mirrors frequently.
- See the whole picture and anticipate what the other driver will do.
- Be sure you are seen and communicate your intentions.
- Follow at safe distances, three or four seconds behind the proceeding vehicle at the current speed.
- Watch for a last resort escape route.
- Choose less demanding routes and know where to go in advance.
- Check traffic over your shoulder before changing lanes.
- Look backwards before backing up.
- Use other aids as necessary (hats, visors, tinted lenses, magnifiers, etc.).

New drivers, whether or not they have albinism and lower visual acuity, often experience typical problems. One common example is the difficulty almost all new drivers encounter when trying to steer the vehicle straight at high speeds the first time they drive on a highway. Because the new driver tends to look directly in front of the vehicle instead of focusing on a point in the distance, the driver ‘oversteers’, and the vehicle may move back and forth or in and out of the traffic lane. Patience and practice will allow the new driver to overcome these tendencies.

Drivers with albinism may experience some unique challenges in driving that other drivers with low vision do not encounter. For example, persons with albinism have very low tolerance to bright light and glare, and they do not have true binocular vision. They must learn to compensate for glare from the sun or oncoming headlights, and also must develop the ability to judge depth of field monocularly in driving

situations. Learning to ride a bicycle safely may help develop depth perception, compensation for various light conditions, judgment, reaction time, and familiarity with driving patterns.

Bioptic Driving

The most popular low vision aid utilized for driving by persons with albinism is the bioptic telescope. The bioptic consists of a miniature Galilean telescope that is positioned in the upper portion of a carrier lens. The carrier lens, which incorporates the individual’s standard refractive correction, is conventionally mounted in the frame. This arrangement allows the user to look through the telescopic portion for spotting and magnifying distant objects while permitting a rapid change in fixation to the large carrier lens for general viewing of the entire visual environment. The most commonly used bioptic magnifications prescribed for driving are the 2.2X, the 3.0X and the 4.0X. The bioptic telescope is a lens system that requires time and training for an individual to become proficient in its use. The following is an effective bioptic training sequence that has been used by many individuals.

- Rapidly locate stationary objects while you are still.
- Rapidly locate moving objects while you are still.
- Rapidly locate moving objects while you are moving (preferably as a passenger in a car).
- Develop accurate visual perception skills to evaluate the environment rapidly.

A bioptic is used only intermittently, never constantly, during driving. The bioptic is a spotting device. The amount one spots through the bioptic varies depending on the type of driving. Generally the faster one is going, the more often the bioptic will be used for spotting distant objects. The majority of driving tasks will use the vision through the carrier lens. Maximizing eye movement instead of head movement can decrease response time.

The Controversy over Bioptics

Critics of using bioptics for driving raise several concerns including:

- small visual field through the bioptic telescope;
- ring scotoma causing a hazardous blind spot;
- vibration and speed blur;
- telescopic parallax (shifting of view) and depth perception;
- difficulty of using the bioptic with mirrors;
- critical adjustment of the bioptic frame and angle of the lens.

Proponents of the use of the bioptic telescope respond:

- The visual field through various types of bioptics of 6 to 17 degrees is actually larger than the 5 degree foveal (precise vision) area for a normally sighted person with 20/20 vision.
- The ring scotoma (blind area) around the telescope does not pose a hazard when the bioptic user moves the head and is moving through space in a vehicle because no object can be 'lost' for a significant length of time in the scotoma under these conditions.
- Everyone, no matter what vision they have, experiences deterioration of the visual image due to speed blur at increased speeds and this phenomena is unrelated to the use of the bioptic.
- It is unnecessary to have binocular vision in order to perceive depth. Drivers who have vision in only one eye (but do not have low vision) perceive depth monocularly and drive safely.

- The image in a mirror is at infinity focus.
- A bioptic focused for distance will be able to magnify the reflected image for the user as if the user were looking at the object in the distance.
- Adjustments of the lens and frame are critical, but the user can learn to adjust the nosepieces and temples for optimal positioning of the telescope.

Conclusion

If you have low vision due to albinism, and are highly motivated to drive, you can do it as long as your eye specialist verifies that you meet the visual prerequisites for your state, and you put forth the time and effort to learn how to do it safely.

— 1998, Dennis Kelleher, Ed.D., NOAH Director; Charla McMillan, MS, President, NOAH 1996-2000

— 1998, Reviewed by the NOAH Albinism Awareness Committee: James Haefemeyer, MD, MS, Chair, NOAH Board of Scientific Advisors; Janice Knuth, MSW, ACSW, LSW, President, NOAH 1982 – 1993; Michael McGowan, Second Vice President, NOAH 1998

Driver Training

The Association of Driver Educators for the Disabled (ADED) provides information on driver rehabilitation programs that include low vision driver training with spectacle mounted telescopes. For more information contact ADED by telephone: 618-357-5055/ Toll Free in the US (800) 290-2344 or e-mail: webmaster@driver-ed.org, or access their website: <http://www.driver-ed.org>

© National Organization for Albinism and Hypopigmentation

PO Box 959, East Hampstead, NH 03826-0959, USA

Telephone: 603 887-2310 / 800 473-2310

Internet: <http://www.albinism.org> E-mail: info@albinism.org