

For drivers with telescopic lenses, driving experience and training affect road test results

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For people with low vision who need bioptic telescopic glasses to drive, previous driving experience and the need for more training hours are the main factors affecting performance on driver's license road tests, according to a study in the April issue of *Optometry and Vision Science*, official journal of the American Academy of Optometry.

After [driving experience](#) is taken into account, visual factors have no significant effect on road test scores in [drivers](#) using bioptic devices, report Bradley E. Dougherty, OD, PhD, FAAO, of The Ohio State University College of Optometry and colleagues. "This study suggests that judgments by [driving](#) trainers and the previous driving experience of new bioptic telescope drivers is predictive of driving performance," according to the researchers.

What Factors Affect Road Test Results in Bioptic Drivers?

Bioptic telescopic devices attached to a pair of the glasses may permit driving with a special license by some people with decreased central vision but adequate peripheral vision. When they need to see more distant objects, drivers can tilt the head downward to obtain a telescopic view.

Forty-three states currently issue bioptic telescope licenses for

appropriate candidates, after special [training](#) and testing. However, amid ongoing debate over these special licenses, there is little information on factors affecting driving performance or safety in bioptic drivers.

To address this issue, the researchers analyzed the results of Highway Patrol [road tests](#) in 74 Ohio drivers who received bioptic licenses, whether on their first test or on repeat testing. Participants were identified through the bioptic telescope driving program at Ohio State program, which trains about three-fourths of bioptic drivers statewide.

Previous driving experience—before telescopic lenses were needed—was the single strongest predictor of the road [test results](#). "Forty-one percent of candidates without previous driving experience passed the Highway Patrol exam on the first attempt, compared to 81 percent of those with experience," Dr Dougherty and colleagues write.

Hours of bioptic driver training were also a significant factor—candidates who needed more training actually performed worse on the road test. Median training time was 33 hours for candidates who failed at least one portion of the road test, compared to 17 hours for those who passed on their first attempt.

While that may seem counterintuitive, the difference in training hours likely reflected the trainer's belief that the person was not yet ready for the road test. The effect of training hours on road test results remained significant even after adjustment for previous, non-bioptic driving experience.

Candidates with involuntary eye movement (nystagmus)—often younger patients who often had congenital vision disorders and no previous driving experience—also performed worse on road tests. Otherwise, performance was not significantly affected by visual acuity or other visual factors.

"[P]atients with a wide range of visual profiles appear to be able to perform the tasks associated with training and testing for bioptic driving licensure," Dr Dougherty and colleagues write. "This will continue to make it difficult for patients, clinicians, and administrators of bioptic programs to predict the amount of time likely to be needed for driver training or the likely results for licensure based on the visual or demographic characteristics of the drivers."

The researchers call for further studies to help identify the most effective training regimen for bioptic drivers. Anthony Adams, OD, PhD, Editor-in-Chief of *Optometry and Vision Science*, comments, "It also remains to be studied whether road test results, per se, are predictive of accidents after licensing for bioptic drivers."

More information: "Vision, Training Hours, and Road Testing Results in Bioptic Drivers" [DOI: 10.1097/OPX.0000000000000547](https://doi.org/10.1097/OPX.0000000000000547)

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