

Is it Safe to Drive with Monocular Vision?



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Many unfortunate people have lost the sight in one or both eyes. . Prior to losing the sight in one eye – called Monocular vision – people didn't think too much about it. Monocular vision occurs for a variety of reasons, including eye disease. However, it most commonly occurs when there has been trauma, injury or accident to the eye involving severe or total loss of sight. But is it safe to drive with Monocular vision? This article 'looks' at some of the causes of Monocular vision and problems associated with it e.g. reduced peripheral vision and the steps to be taken if you are about to learn to drive. Also, some useful tips are given on how to deal with everyday situations. Advice is given on the obligation to tell the RSA or the DVLA about your monocular vision, also car insurance companies may require you to tell them because if you withhold information and make a claim at any point, your insurance may be deemed invalid. But the good news is that yes, you can drive if you fulfil the standard of vision for driving. However if you have a health condition in your sighted eye, you should still check with the DVSA or Road Safety Authority to ensure it is safe to drive Finally, a conclusion is given.

Is it Safe to Drive With Monocular Vision?

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Introduction

The human senses are our contact to the environment. The human brain combines the fireworks of neurons for seeing, hearing, smelling, tasting and touching into a meaningful whole. But we usually don't think too much about our senses until an organ stops working. Humans have five senses: the eyes to see, the ears to hear, the tongue to taste, the nose to smell and the skin to touch. By far, the most important sense is our eyes as we perceive about 80/85pc of all information by means of our sight. And if other senses such as taste and smell stop working, it's our eyes that best protect us from danger. ¹ Driving is recognised to be a usually intensive task and accordingly, there is a legal standard of vision required for all motorists. For most people in today's society, the entitlement to drive is essential for the maintenance of independence and mobility. The role of vision in driving has traditionally been assessed by observing the association between usual function and driving safety, usually determined by the number of traffic violations (e.g. failing to obey traffic signs) or involvement in motor traffic collisions. Failure to achieve the visual acuity or visual field standards required is considered a disability which drivers are required to notify the Road Safety Authority (IRL.) or the DVSA (GB). ² But is driving with sight in one eye (Monocular vision) ³ only, a disability and does a driver have to notify the relevant authority? Monocular vision means having sight in one eye only and can mean having difficulties with balance, orientation, spatial awareness, going up and down stairs and hand-eye coordination. Monocular vision occurs for a variety of reasons, including eye disease. However, it most commonly occurs when there has been trauma, injury or accident to the eye involving severe or total loss of sight. Occasionally, the injured or diseased eye is removed; this is called enucleation. ⁴ There are a number of reasons why a person can develop sudden visual loss, including inflammation, vasculitis, trauma and mechanical dysfunction. Also, injuries caused by a metal shard entering an unprotected eye while machining or a tradesman driving a steel nail that snaps and injures the unprotected eye. Driving with sight in one eye is called 'Monocular vision'.

¹ *Why good vision is important.* October 2017. zeiss.com

² *Visual information & fitness to drive.* British Medical Bulletin. Vol.87, Issue1, September 2008. Pages 163-174. academic.oup.com

³ The word *Mono* comes from the Greek root, *mono* for single, and the Latin root, *oculus* for eye.

⁴ Enucleation is the surgical removal of one eye. Following enucleation, an artificial eye (ocular prosthesis) is implanted as a cosmetic substitute for the real eye. See *Ability. Monocular Vision and Information Advice.* seeability.org

You don't have to inform the Road Safety Authority (RSA Ireland) or the DVLA about your sight loss, as long as you're still able to meet the standards of vision for driving. However if you have a health condition in your sighted eye, you should still check to ensure it is safe to drive with the aforementioned bodies. According to the DVLA, you can be fined up to £1,000.00 if you don't tell them about any medical condition that affects your driving.

Minimum Legal Standards

According to the Royal National Institute of Blind People (RNIB) estimates that almost 2 million people in the UK live with sight loss that has a significant impact on their daily lives and predicts that this figure will rise to almost 4 million by 2050.⁵ However, there are no official estimates of the number of drivers and motorcyclists on the road with eyesight that fails to meet the minimum legal standards. There have been many surveys, typically conducted by insurance companies or eye care companies; for example a Specsavers survey estimated that as many as 3.5m people could be driving with eyesight below the legal minimum, and that 22% of British drivers who need glasses or contact lenses have knowingly driven without them. However, there is little hard evidence of the number of drivers and motorcyclists with eyesight that fails to meet the minimum legal standards.⁶

Nose Blocks Your View

There is strict eyesight rules that all drivers are required to follow. But how does sight in only one eye – Monocular vision – affect your legality and ability to drive? Drivers with Monocular vision can drive safely, although drivers with bus, coach or lorry licences must inform the RSA or the DVLA. You may experience Monocular vision before you ever start thinking about learning to drive, or develop the problem after you've passed your driving test and had your driving licence for years. Either way, you need to know what the RSA and the DVLA has to say on the matter and whether you need to inform your insurance company, and the resources available for helping you to adapt to driving with one eye. Whether you'll be allowed to drive with eyesight in just one eye is a matter relevant to your particular circumstance. However, chances are that you'll be able to get behind the wheel and according to official guidelines, applicants for car and motorcycle licences will not usually have to tell the RSA or DVLA about their condition.

⁵ NCBI. *The prevalence of visual impairment in people with dementia: a cross-sectional study of people aged 60-89 years with dementia and qualitative exploration of individual career and professional perspectives.* ncbi.nlm.nih.gov

⁶ *Visual information & fitness to drive.* British Medical Bulletin. Vol.87, Issue1, September 2008. Pages 163-174. academic.oup.com

So long as you meet the usual eyesight standards for driving, it doesn't matter if you have sight in one eye or both. In a nutshell, you must be able to read a post-2001 number plate from 20 metres away, and have an adequate field of vision. If you have Monocular vision, your field of vision will be reduced if you can see out of only one eye, meaning you might miss road hazards that you may otherwise see. You will also experience a blind area (spot) where your nose blocks your view. Complete loss of vision in one eye i.e. if there is any light perception, the driver is not considered monocular. A driver is permitted to drive when clinically advised by a competent medical authority and has adapted to the disability and the prescribed standard in the remaining eye and can be satisfied there is a normal visual field in the remaining eye i.e. there is no area of defect which is caused by pathology. Drivers should notify the National Driver Licensing Service (NDLS-RSA) or the DVLA (GB), if medical advice is to cease driving for six months or longer. While you are not usually obliged to tell the NDLS (RSA) or the DVLA about your monocular vision, car insurance companies may require you to tell them. If you withhold information and make a claim at any point, your insurance may be deemed invalid. This can cause huge financial problems, so it's always best to check with your individual insurers about the specific conditions of your policy.

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Reduced Overall Peripheral Vision

Depth perceptions which help you judge distance can also be affected by Monocular vision. This can make driving skills like entering motorways from slip roads and travelling in traffic particularly difficult. However, most people are able to adapt well to living with Monocular vision, even if they develop the condition in later life. While Monocular vision can reduce your overall peripheral vision, it doesn't halve it. You will have to turn your head more to compensate for your narrower field of vision and blind areas (spots), but this should become habitual over time. And while you may initially experience issues with your depth perception, it's amazing how the human brain can adjust. The good news is that Monocular vision on its own shouldn't stop you having the freedom to get out and about in your car. If you have lost sight in one eye, you will lose part of your side vision and initially you may have problems with your depth perception. People who have lost sight in one eye can generally perform most tasks that someone with full eyesight can, even driving or piloting a plane. Also, most people with sight in one eye only can read printed matter, watch television and perform day-to-day activities without any problems.

⁷ Katie Scott. *Can you drive with one eye?* Blog. passmefast.co.uk

However, if you have sight loss in one eye and have difficulty performing tasks, you should seek advice from your doctor, optician or contact the National Council for the Blind (Ireland) for emotional support and practical help and advice.⁸ Driving with Monocular vision may include relatively minor inconveniences and require more diligence. The biggest hurdles come from proving to the Government and sometimes the driver himself that he is able to handle a car safely.

Learning to Drive

Before ever starting to drive and prior to acquiring a Learner Permit in Ireland, a person must have their eyesight tested by an optician or doctor and this certification must be submitted to the NDLS-RSA with other necessary documentation. However, in the UK, and surprisingly, the only eyesight test given to the learner is immediately prior to his/her driving test. He/she must be able to read (with glasses if worn) an old style number plate from a distance of 20.5 metres and a distance of 20 metres for the new style one. If you have Monocular vision and are thinking of learning to drive, then the first thing to do is to ascertain that you are legally permitted to drive. Once you've established that you're allowed to drive, the process is the same as any learner driver: establish whether you wish to gain a licence for a manual or automatic car, find a competent driver trainer who understands your eyesight problem and hopefully pass your driving test first time. If you've been told you're not allowed to drive, but are struggling to adapt then, one option is to opt for some refresher driving lessons. They give you the opportunity to go out with a professional trainer and build up your confidence so you will get back to feeling comfortable driving solo again. Driver trainers often have pupils who have already passed their practical test, and may well have experience in teaching others with similar eyesight issues. Remember, you can always talk to them about their teaching style and explain your particular needs and requirements before you commit to booking and lessons.

Visual Field Assessment

In many countries, driving with vision in only one eye is legal. The question of ability to drive usually relates to field of vision. Since removing an eye or loss of sight in one eye reduces the visual field by only about 2/5, enucleation alone is not a barrier to driving when the other eye has a very good visual field. However, there are some important things - like choosing a suitable car or night driving - to bear in mind when driving with Monocular vision (see below). In a visual field assessment to determine fitness to drive, a number of tests are possible.

⁸ NCBI – Working for people with sight loss. Ireland's National Sight Loss Agency. ncbi.ie

For example, in the UK and Australia, a binocular Esterman Field Test is recommended.⁹ Monocular full field charts may also be requested in specific conditions. Exceptionally, Goldman perimetry carried out to strict criteria will be considered. For an Esterman binocular chart to be considered reliable for licensing, the false positive score must be no more than 20pc. When assessing monocular charts and Goldman perimetry, ¹⁰ fixation accuracy will also be considered.¹¹

Your Car

Always test drive your chosen car thoroughly before buying, as visual comfort varies widely between makes and models. For example, the rear window in many smaller cars gives a very restricted view. In combination with restricted visual field, these small windows create many dangerous blind spots that are not present with larger cars. Do some turnabouts, reversing, parallel parking, and changing lanes to determine whether the car gives you enough vision on all sides. Choose the car that feels safest to you when undertaking these manouveres.

Driving Aids

A range of driving aids can improve vision for a Monocular driver that make manouveres like lane change and parking easier. Consider testing these out to determine whether they can make a difference to you.

- Larger wing mirrors on both sides
- Convex mirrors on both wing mirrors
- Rear wipers and de-misters
- A wide rear vision mirror
- Reversing sensors
- Halogen headlights (maximize visibility at night)

Depth Perception

Monocular vision often causes the brain to lose ability of assessing the distance to an object ahead.

⁹ Esterman visual field perimetry is a binocular testing method which is also available in the HFA. (Humphreys Field Analysis). The test consists of 120 white test points shown with equal – non-adjustable supra- threshold lights intensity of 10dB and examines more than 130 degrees of the field. Humphreys Fiels Analysis (HFA) is an automatic , ststic threshold perimeter using stimuli of varying luminance in order to find the minimum luminance which can be detected in each test point.

¹⁰ Goldman perimetry is a form of kinetic perimetry: A stimulus is moved beyond the edge of the visual field into the field. The location at which the stimulus is first seen marks the outer perimeter of the visual field for the size of the stimulus tested.

¹¹ *RSA Medical fitness to drive guidelines. Group 1 and 2 drivers. August 2019. rsa.ie*

Children who lose an eye very early usually adjust very well so by the time they are old enough to drive, they have learned how to manage this loss and judge distances well. However, it is important that Monocular drivers take special care to protect yourself and other drivers, especially in poor weather conditions.

- Always maintain a good distance between yourself and the car in front.
- Always observe the speed limit, and consider a speed alert system to help you stay within the limit.
- Do not drive when tired as fatigue changes depth perception even in healthy eyes.

Parking

Parallel and reverse parking can be challenging for fully sighted drivers. Monocular drivers must pay extra attention when executing these manouvers. Allow ample time and patience, and ask passengers to allow you to focus on the process. Use driving aids and don't be afraid to ask others to help by guiding you in.

Night Driving

Monocular vision can be especially challenging at night due to contrast between the dark night and bright streetlights and headlamps of oncoming traffic. This can be especially true for bilateral retinoblastoma¹² survivors who drive, as the seeing eye may be more sensitive to light due to treatment in childhood. Consider asking for a pair of night driving glasses – these have a special tinted lens to reduce glare. This coating can also be applied to prescription lenses

Tips For People With Monocular Vision

Here are a few practical tips that you may find useful in your everyday activities:

- If going out for a meal, make sure that your friend or partner sits on your seeing side. Watch out for waiters serving on your blind side.
- Distance judgment is needed to pour liquids accurately. To avoid spillage, rest the upper container on the rim of the lower one when pouring liquids.
- You may find that you are bumping into things on your blind side. Always take a good look around before you make any sudden turns.
- When putting a drink down, place your other hand on the table or surface and then place the drink next to it.

¹² American Cancer Society. *What is retinoblastoma?* cancer.org

- It can be difficult to judge the last step on a stairs. Move cautiously, feel ahead with your foot and keep your hand on the handrail.
- You may find it useful to stop at road kerbs to judge their depth.
- Magnifiers and telescopes can be helpful.
- Large print books are often useful.
- For up-close work, think about using task lighting, which is a strong, localized source of light; for example, a small, high-intensity lamp supplemented with general ceiling lighting.

New DVLA ‘EYE 735T’

On 23 July 2018, The DVLA launched ‘EYE 735T’ a new campaign which stresses the importance of taking regular eye tests. The New DVLA campaign calls for drivers to continually check they can still read a number plate from the required distance – by standing five car lengths or eight parking bays away from another vehicle. The campaign also encourages anyone with concerns about their eyesight to visit their optician or optometrist for an eye test. Surprisingly in 2017, the Association of Opticians called for those behind the wheel to have a compulsory eye test every **10 years**. This is in stark contrast to the NHS recommendations that drivers should have an eye test every **two years**. Jonathan Lawson of Vision Express said: *“It is estimated that as many as 1.5 million UK licence holders have never had an eye test and road crashes caused by poor driver vision is estimated to cause 2,900 casualties”*.¹³

Study Findings

People with Monocular vision face significant difficulties because of their visual impairments. Findings from a study¹⁴ revealed a range of psychological, psychosocial, vocational and daily living problems that affect many areas of life and have profound consequences for people’s psychological and physical well-being. Although some people with Monocular vision are able to lead relatively typical lives, for many the effects of the impairment can be pervasive. For some, the impact of Monocular vision on work is devastating, leading to loss of jobs and businesses, the ability to pursue career dreams (like joining the RAF) and reduced incomes. The performance of daily activities, such as driving, mobility, grooming, household chores, hobbies and sports are also adversely affected.

¹³ Road Safety GB. *DVLA launches new drivers’ eyesight campaign*. roadsafetygb.org.uk

¹⁴ Nicholas Buys & Jorge Lopez. *Experience of Monocular vision in Australia*. Sept. 2004, Vol.98: No. 9. research – respositor.griffith.edu.au

Conclusion

Driving with sight in one eye is called 'Monocular vision'. Monocular vision occurs for a variety of reasons, including eye disease. However, it most commonly occurs when there has been trauma, injury or accident to the eye involving severe or total loss of sight. People who have lost sight in one eye can generally perform most tasks that someone with full eyesight can, even driving or piloting a plane. Also, most people with sight in one eye only can read printed matter, watch television and perform day-to-day activities without any problems. However, for some, the performance of daily activities, such as driving, mobility, grooming, household chores, hobbies and sports can be adversely affected. There are a number of reasons why a person can develop sudden visual loss, including inflammation, vasculitis, trauma and mechanical dysfunction. Also, injuries caused by a metal shard entering an unprotected eye while machining or a tradesman driving a steel nail that snaps and injures the unprotected eye. A driver is permitted to drive when clinically advised by a competent medical authority and has adapted to the disability and the prescribed standard in the remaining eye and can be satisfied there is a normal visual field in the remaining eye i.e. there is no area of defect which is caused by pathology. If you have monocular vision and are thinking of learning to drive, then the first thing to do is to ascertain that you are legally permitted to drive. Once you've established that you're allowed to drive, the process is the same as any learner driver: establish whether you wish to gain a licence for a manual or automatic car, find a competent driver trainer who understands your eyesight problem and hopefully pass your driving test first time. People with Monocular vision are permitted to drive when clinically advised by a competent medical authority and has adapted to the disability and the prescribed standard in the remaining eye and can be satisfied there is a normal visual field in the remaining eye i.e. there is no area of defect which is caused by pathology. However, chances are that you'll be able to get behind the wheel and according to official guidelines, applicants for car and motorcycle licences will not usually have to tell the RSA or DVLA about their condition. Finally, the good news is that yes, you can drive if you fulfil the standard of vision for driving. However if you have a health condition in your sighted eye, you should still check with the DVSA or Road Safety Authority to ensure it is safe to drive, because to drive safely you must use all your senses, including eyesight, to glean the maximum amount of information from the driving environment.

