

AAA Foundation for Traffic Safety
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How To Avoid Headlight Glare



AAA Foundation for Traffic Safety is a 501(c)(3) non-profit organization.
The Foundation's mission is to prevent traffic deaths and injuries
through research into their causes and to educate the public about
strategies to prevent crashes and reduce injuries.

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If bright headlights and glare bother you when you drive at night, you're not alone. But you don't need to continue to suffer. With the right strategies, the right driving techniques, and the right equipment, you can learn how to handle nighttime glare with confidence.

New Lights, Old Problems

Drivers have been complaining about glare ever since electric headlights began replacing oil lamps on automobiles more than 100 years ago. So why does glare seem to have grown worse? The answer involves technology, automotive design, and demographics.

Extra Lights

Many vehicles now sport fog lamps or other auxiliary lights in front. Ideally, fog lamps cast a low, broad beam to reduce "back-scatter" from the vehicle's headlights when water droplets hang in the air. They're intended to improve a driver's ability to see in foggy, misty, or hazy conditions. However, when they're aimed improperly or used on clear nights, they can annoy other drivers.

★ High-Intensity Discharge (HID) Lights

Introduced in Europe in 1996, HID lights are showing up on more cars in the United States, especially upscale models. Unlike conventional bulbs, HID headlights don't have filaments. Instead, they use a high voltage electrical arc to ionize xenon gas and make it glow. HID lights emit twice the light of halogen headlights, but also produce a blue-white light. Other headlights look yellow by comparison.

Whether you love HID lights or hate them depends on which side of the light you're on. Drivers with HID lights swear by them, while other drivers swear at them. Many motorists who are faced with HID lights find the amount of light and its blue-white quality blinding. In fact, a Foundation study surveyed drivers whose cars were equipped with HID headlights to determine how much glare their headlamps were causing for other drivers, and nearly 1 in 5 reported at least occasionally receiving high beam flashes from other drivers. The type of headlamp light source (HID vs. non-HID) was a significant predictor of receiving high beam flashes.



★ Higher Lights

Although no headlights can exceed the 54-inch height limit set by federal safety standards, many larger vehicles - such as light trucks and sport utility vehicles (SUVs) - ride higher than cars. As a result their headlights often ride higher, too, leading to many complaints from car drivers that the lights on SUVs and pickup trucks shine directly into their eyes.

★ Off-Kilter Lights

Headlights pointed as little as one degree too high can make a huge difference to oncoming drivers. Misaimed beams also don't cast as much light on the road, where it is most needed. Unfortunately, studies show that almost half of the vehicles in states that require regular inspections had at least one improperly aimed headlight. And, vehicles more than five years old are twice as likely to have off-kilter headlights as new ones.

Your Eyes

Like beauty, glare is often in the eye of the beholder. Drivers middle-aged and older are more sensitive to glare than younger drivers because their eyes take longer to adjust to changing light levels. For example, a 55-year-old takes eight times longer to recover from glare than a 16-year-old. As the population ages, the number of older drivers will continue to rise as will the number of complaints about glare. Lighter-colored eyes are more sensitive, which means the lighter your eyes are the more glare will bother you. Certain other conditions, such as having had vision-correction surgery that affects the corneas, may also increase your sensitivity to glare.

Prepare to Fight Glare

Even before you hit the road, prepare yourself and your vehicle for combating the bright lights ahead.

Clean Your Headlights

When you clean your windshield, be sure to clean your headlights, too. Even a thin layer of road grime on lenses can block up to 90 percent of the light and severely restrict your ability to see at night.

Clean lenses are even more important if you have HID headlights. Dirt diffuses the light from HID lights and causes glare that can temporarily blind other drivers, so headlight-cleaning systems are standard equipment on many cars with HID lights. Using the headlight cleaners regularly becomes a matter of “enlightened” self-interest for you; when you reduce glare for oncoming drivers you improve your own safety as well. After all, everybody shares the same road.

Keep All Glass Clear and Clean

Streaks, smudges, and road grime on your windows catch and refract light. This includes the inside of your windshield. Chemicals from the plastic in your car’s interior slowly build up on the glass, until pretty soon you’re looking at the windshield, not through it. Scratched eyeglasses or contact lenses also make glare worse.

For maximum glare prevention, keep every surface between your eyes and the road as clear as possible – including both sides of your windshield and your eyeglasses. Clean the windows both inside and out at least once a month to get rid of haze.



While you’re at it, clean your wiper blades with a paper towel dipped in windshield washer fluid. This removes grime and oxidized rubber from the edge of the blade and helps prevent streaking. If streaks persist, you need new blade refills available from any auto parts store or discount chain.

Have chips or cracks in the windshield repaired immediately. Often a trained glass repair technician can fill small damaged areas with special resin – a fast, inexpensive process that not only improves visibility but also prevents the crack or chip from growing and requiring a windshield replacement.

These simple, but surprisingly effective techniques will help you fight glare:

Aim Headlights Correctly

If you live in a state that requires regular safety inspections, ask the technician to check and correct the aim of your headlights. If your state doesn't require such an inspection, take your vehicle to an auto mechanic, dealer or other properly equipped repair shop at least once a year for a headlight checkup. Your properly aligned headlights will help you see better, and will help other drivers avoid glare.

Adjust Both Outside Mirrors

Properly aligned mirrors not only reduce blind spots, they also reduce glare from vehicles behind you.

AAA recommends the following method:

While sitting in the driver's seat, lean to the left and tilt your head until it rests against the window. From that position, adjust the driver's side mirror so you can just see the left rear corner of the vehicle. Next, while sitting in the driver's seat, lean to the right and tilt your head until it's in the center of the vehicle. From that position adjust the passenger-side mirror so that the right rear corner of the vehicle is just visible.

Now when cars pass you, you'll notice that your mirrors don't direct the brightest part of the headlights into your eyes. You'll also notice that the arrangement reduces blind spots and makes it easier to spot vehicles to the side and rear.

Have Your Vision Checked Regularly

The American Optometric Association recommends comprehensive eye exams every two years for persons age 60 and younger, and annually for those 61 and older. Age makes eyes more sensitive to glare, but certain medical conditions, such as encroaching cataracts will increase the problem. If the problem is detected early, your eye care professional can recommend effective treatment.

★ **Behind-the Wheel Tips**

Avert Your Eyes

When oncoming vehicles shine light directly into your eyes, look down and to the right. Turn your gaze to the white line on the right side of the road, or to where pavement meets shoulder, until the vehicle goes by. You can still see the vehicles around you with your peripheral vision, but the glare won't bother you as much because you are not using the most light-sensitive part of your eyes.

Learn to Use Your Mirror's "Night" Setting

All cars have "day/night" interior mirrors to reduce reflected glare from vehicles directly behind you. You can change the mirror to its "night" setting by flipping the small lever at the bottom of the mirror. This changes the angle of the reflective surface and appears to dim the mirror. Lights will show up in the glass, but they're much less bright and not so bothersome.

Use Your Lights Courteously

In fog, use only your low-beam headlights; high beams reduce your own ability to see and may temporarily blind other drivers. If your car has fog lamps, only use them if there is fog and in conjunction with your low beams. Avoid using your high beams when you see oncoming vehicles or when you drive in urban areas.

Take Frequent Breaks

If you're driving at night for a long time, stop often to reduce fatigue and give your eyes a chance to recover. Take a short nap, or at least a brisk walk and some caffeine to help you stay alert.

★ Extra Glare Protection

If glare still bothers you after prepping your car and yourself for night driving and trying the techniques previously mentioned, consider these strategies:

Anti-Reflective Eyeglass Coating

Many eye care professionals strongly recommend glasses with an anti-reflective (AR) coating. This ultra-thin film, made from zircon and silicon, reduces internal reflections in the lenses. Unlike sunglasses or self-darkening lenses, which block some light, AR-coated glasses actually transmit more light – about 8 percent more. This improves vision at night and helps distinguish fine details during the day. Highway patrol troopers have reported better night and day vision and reduced nighttime glare with AR-coated lenses. These lenses may help you too.

Self-Dimming Mirrors

Many upscale cars now offer self-dimming mirrors that reduce glare but allow you to maintain excellent rearward visibility. As glare becomes brighter, the mirrors become darker; as glare diminishes, the mirrors lighten up. These mirrors are available from some dealers and automobile parts stores. If you're particularly sensitive to reflected glare, consider getting self-dimming mirrors, either as replacements for your current mirrors or as equipment on your next car.

If All Else Fails

Drivers with vision problems may find that even these techniques don't help. In that case, consider driving less at night, or restricting your travel to routes that have good overhead roadway lighting and clear, well maintained pavement markings.

★ Things to Avoid

Some retailers offer special, tinted glasses that supposedly block the wavelengths of light responsible for most troublesome glare. Unfortunately, no matter what the color, these glasses also reduce the amount of light that reaches your eyes, and you need light to see. While these glasses may reduce glare, they also reduce your night vision overall.

Wearing Sunglasses at Night

Eye care professionals warn against wearing sunglasses at night, and they should also not be worn while driving in tunnels, parking garages, or other poorly-lit areas. They not only restrict your night vision but eventually, as your eyes get used to them, they become inadequate for daytime protection.

Installing Imitation HID Headlights

Those who envy the HID headlights on upscale cars often fall for the fake HID lights offered by some manufacturers as replacements. Even though they may have a "xenon" or "blue" in their names, they're often just ordinary halogen headlights that have been given a blue tint. Because of the added coloring they may actually provide less light than regular bulbs. If you must replace your headlights, don't buy cheap, imitation HID lights; consider using the lights recommended by your vehicle's manufacturer.

The right strategies, driving techniques, and equipment will help you handle nighttime glare with confidence.