

Treating Glaucoma with Medication

For full information about glaucoma and available resources, go to PreventBlindness.org/Glaucoma

What is glaucoma?

Glaucoma is a serious, lifelong eye disease that causes vision loss by damaging a part of the eye called the **optic nerve**. The optic nerve sends information from your eyes to your brain. When glaucoma damages your optic nerve, you begin to lose patches of vision – usually peripheral (side) vision. Over time, this loss can get closer to your central vision. Slow vision loss from glaucoma may lead to decreased outdoor activities, less walking, lower reading speed, loss of a driver’s license, changes with employment, assistance with daily activities, and decreased quality of life. Early detection of glaucoma and maintaining treatment as prescribed by an eye care provider are important ways to prevent vision loss.

It is not exactly known how the optic nerve is damaged, but for some, increased pressure inside the eye seems to play an important role. Glaucoma does not have to lead to blindness. It is important that you see your eye doctor when you notice any changes with your vision. That is because glaucoma can usually be treated and controlled using medicine(s), laser surgery, glaucoma surgery, or a combination of these treatments. Medicines (eye drops) are typically the first step in treatment.

Do you need financial help for your glaucoma care?

Visit PreventBlindness.org/Glaucoma-Financial-Assistance-Information for glaucoma financial assistance information.

Types of Glaucoma Medication

Glaucoma medicines are usually in the form of eye drops but can also come in pills (although pills are not usually a long-term treatment due to their side effects). A tiny implanted device which automatically emits glaucoma medication placed in the eye is also available. These all reduce eye pressure by lowering the amount of aqueous fluid, the watery fluid inside the eye, produced and/or improving fluid drainage in the eye.

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Glaucoma medications can be grouped into categories based on what they do.

Type of Medication	Form	Possible Side Effects	Examples
Prostaglandin Analogues lower pressure in the eye by improving fluid drainage. These are only taken once daily.	Eye drops	<ul style="list-style-type: none"> ■ Darkening of the colored part of the eye (iris) ■ Increased eyelash growth ■ Sunken appearance of the eye ■ Red, itchy, or burning eyes ■ Temporary blurred vision 	<ul style="list-style-type: none"> ■ latanoprost (Xalatan®) ■ travoprost (Travatan®) ■ bimatoprost (Lumigan®) ■ tafluprost preservative-free (Zioptan) ■ travoprost intracameral implant, 75 mcg (iDose® TR) ■ bimatoprost intracameral implant (Durysta)
Beta-blockers decrease pressure inside the eye by reducing the amount of aqueous fluid your eye makes.	Eye drops	<ul style="list-style-type: none"> ■ Respiratory problems for those with asthma or COPD ■ Decreased heart rate (pulse) and blood pressure ■ Tiredness ■ Depression ■ Changes in blood cholesterol levels ■ Dry Eye ■ Blurred vision 	<ul style="list-style-type: none"> ■ betaxolol (Betoptic®, Betoptic® S) ■ carteolol (Ocupress®) ■ levobunolol (Betagan®) ■ metipranolol (OptiPranolol®) ■ timolol hemihydrate (Betimol®) ■ timolol maleate (Timoptic®, Timoptic-XE®, Cosopt® (see also anhydrase inhibitors))
Alpha-adrenergic Agonists lessen the amount of aqueous fluid the eye makes and may also increase the flow of fluid out of the eye. They are sometimes used after laser surgery to prevent sudden rises in eye pressure.	Eye drops	<ul style="list-style-type: none"> ■ Dry mouth ■ Burning of the eyes ■ Dilated pupils ■ Nasal decongestion ■ Drowsiness 	<ul style="list-style-type: none"> ■ apraclonidine (Iopidine®) ■ brimonidine tartrate (Alphagan®, Alphagan-P®)
Carbonic Anhydrase Inhibitors reduce the amount of aqueous fluid the eye makes.	Eye drops or pills	<p>Eye drop form</p> <ul style="list-style-type: none"> ■ Stinging, burning, or a feeling of something in the eye ■ Odd taste in the mouth <p>Pill form</p> <ul style="list-style-type: none"> ■ Fatigue ■ Malaise ■ Tingling in the hands and feet ■ Depression ■ Frequent urination ■ Anemia ■ Kidney stones ■ Loss of appetite ■ Weight loss ■ Diarrhea and stomach cramps 	<p>Eye drop form:</p> <ul style="list-style-type: none"> ■ brinzolamide hydrochloride (Azopt®), ■ dorzolamide hydrochloride (Trusopt®, Cosopt®) – (see beta blockers) <p>Pill form:</p> <ul style="list-style-type: none"> ■ acetazolamide (Diamox®), ■ methazolamide (Neptazane®)
Combination medications contain two medicines in the same bottle.	Eye drops	<ul style="list-style-type: none"> ■ May include any of the possible side effects for the medications they contain 	<ul style="list-style-type: none"> ■ Cosopt® = Timoptic® and Trusopt® ■ brimonidine and timolol (Combigan) ■ brinzolamide and brimonidine (Simbrinza)

* This table does not list every glaucoma medication or all possible side effects. Some of these drugs may not be safe for people with certain medical conditions. Talk to your doctor about the option that's best for you.

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Preservative-free medications

Most eye drops contain a preservative ingredient called benzalkonium chloride (BAK). After long term use, these drops can cause irritation, dry eye, and burning for a few seconds. Preservative-free glaucoma medications do not contain preservatives and are usually in single-use containers. Preservative-free medications can make you more likely to keep using your medication because you will have less irritation and discomfort of your eyes. However, these medications are more expensive, have a greater risk of contamination which can cause an infection, and the smaller containers are harder to handle. Many people do very well with preservative-free glaucoma medications, and your doctor's office may be able to help obtain some coverage from your insurance company.

The following are some preservative-free medications that are currently available.

- Zioptan: tafluprost ophthalmic (this medication is similar to latanoprost, bimatoprost, or travaprost)
- Cosopt PF: dorzolamide-timolol
- Timoptic in OcuDose: timolol maleate

Follow Your Treatment Plan to Preserve Your Sight

Glaucoma is a chronic condition that requires ongoing care. Your eye doctor will help you decide on an appropriate treatment plan, but it's up to you to stick to it. This means being consistent with both your visits to your eye doctor and taking your eye drops. That can be a challenge for many reasons, such as the cost of your medicine, forgetting to take it at the correct times, uncomfortable side effects, or difficulty using eye drops. Some people with glaucoma may feel that because they do not notice any symptoms, their vision seems normal, or does not seem to be getting worse, they don't really need to use the medication.

Talk to your doctor about any concerns you have, including anything that is making it difficult to follow your treatment plan. You and your doctors are a team. With good communication, you can create a treatment plan that works for you and find solutions to challenges when they arise.

- Tell all your doctors about your eye medicines and all other drugs you're taking.
- Explain to your eye doctor how your glaucoma medicines affect you.
- Keep track of any side effects you experience and write down questions to ask your doctor so you don't forget.
- Ask if there is anything you can do to avoid side effects and how you can manage side effects that are unavoidable.
- Let your doctor know if you've skipped any doses of your medicine.
- Ask your eye doctor to show you how to use your eye drops correctly. Repeat the steps back and allow the doctor to give feedback or additional instruction if needed.
- If you're having trouble paying for your medication, ask your doctor about available financial assistance programs. You can also ask if there are other medicines that are less expensive.

The truth is, skipping doses of your medicine may put your vision in danger. Taking your medicine as directed is one of the most important things you can do to protect your eyes and preserve your vision.

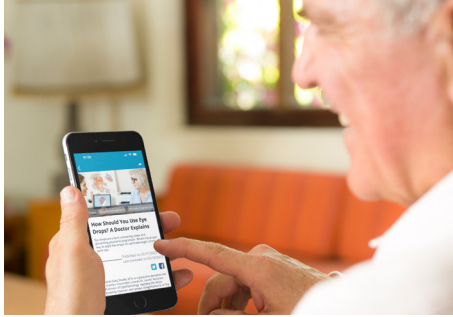
Learn how to take your eye drops correctly. Find helpful tips for taking eye drop medications, including a video tutorial at [PreventBlindness.org/taking-eye-drop-medications](https://www.preventblindness.org/taking-eye-drop-medications). The video also features tips for travel when taking medication as well as tools you can use to make it easier to squeeze the eye drop bottle.



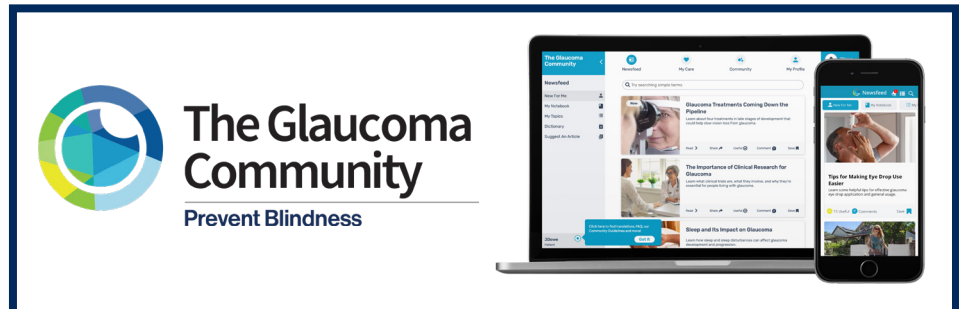
Learn how to take your eye drops

1. Wash your hands with water and soap.
2. Check your eye drop bottle to make sure it is not expired.
3. Remove the cap carefully, avoiding touching the inside of the cap to prevent contamination, and place to the side.
4. Sit on a reclined chair or lie down.
5. Pull your lower lid down with your finger, tilt the bottle down, gently squeeze the bottle, and then place a drop in your eye. Don't let the tip of the bottle touch your eye or face.
6. Repeat for the other eye (if needed).
7. Place the cap back on the bottle carefully and wipe any excess drops from your face with a clean tissue.
8. If you are using different eye drop medications in the same eye, wait the appropriate amount of time between doses as instructed by your doctor.

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Resources for persons with glaucoma:



The Glaucoma Community:

The Glaucoma Community is a free online community that empowers people with glaucoma through knowledge, support, and shared experiences.

ResponsumHealth.com/The-Glaucoma-Community



“This group has helped me to live with glaucoma. Because of it, I know that I’m not alone. There are people who understand and are willing to share.”

–Tom Franklin, member of The Glaucoma Community

Glaucoma Financial Assistance Resources: Prevent Blindness offers a list of organizations and companies that provide financial assistance for glaucoma care. PreventBlindness.org/Glaucoma-Financial-Assistance-Information

Medicare Benefits and Your Eyes: Learn how your Medicare benefits can help cover the cost of your vision care, including glaucoma screening. PreventBlindness.org/Medicare-Benefits-Your-Eyes

The ASPECT Program: The ASPECT Program (Advocacy, Support, Perspective, Empowerment, Communication, and Training) empowers individuals to be engaged in their eye health. PreventBlindness.org/ASPECT-Patient-Engagement-Program