

# A guide to understanding **GLAUCOMA**



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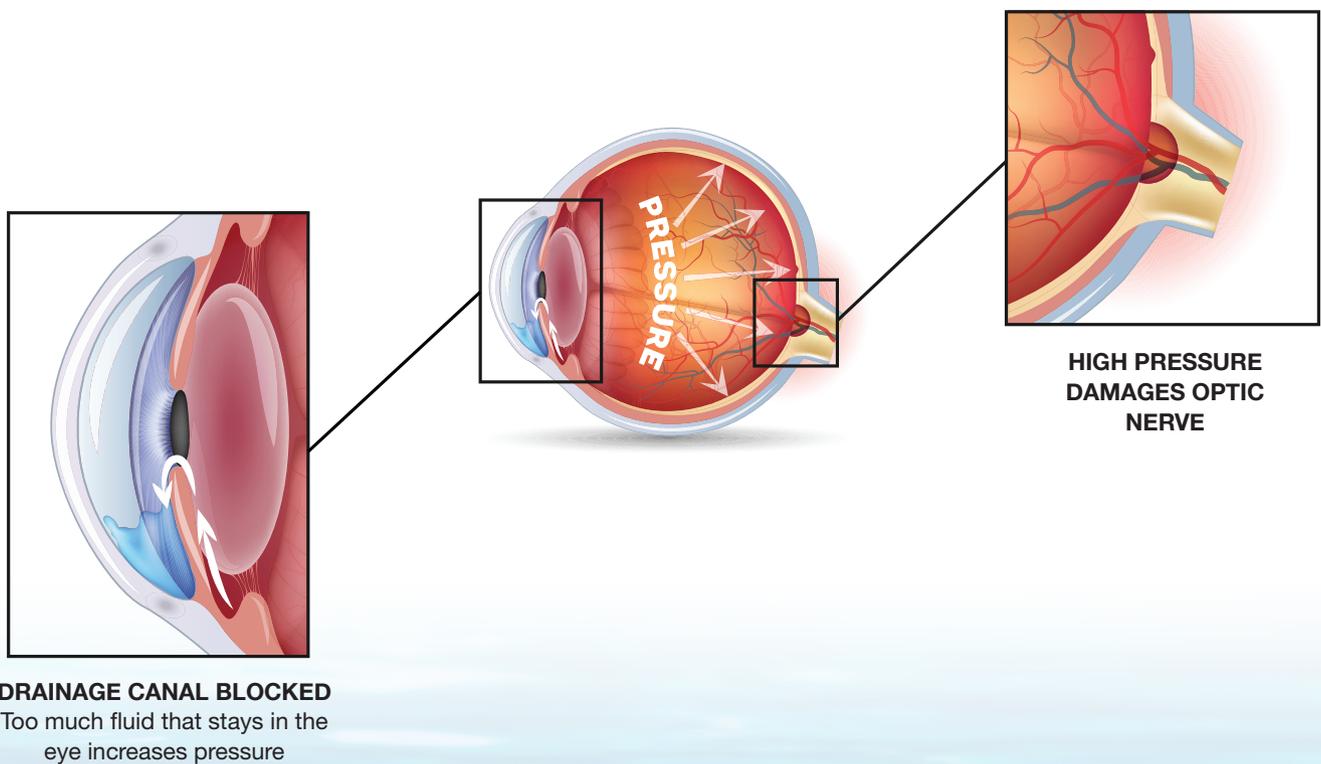
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# What is glaucoma?

- A group of eye diseases that is caused by elevated pressure in the eye. This leads to progressive damage to the optic nerve at the back of the eyes, resulting in vision loss.
- Most people are not aware that they have glaucoma until they experience vision loss. If glaucoma is left untreated, it may lead to blindness.
- Although there is no cure for glaucoma, early diagnosis and continuing treatment can preserve and protect your vision.



# How will my doctor check for glaucoma?

If your doctor suspects you have glaucoma during a regular eye test, a few other tests will be carried out. If any of these tests show abnormal results, you will be referred to an eye specialist (an ophthalmologist) for further tests to confirm your diagnosis.



## Tonometry – eye pressure test

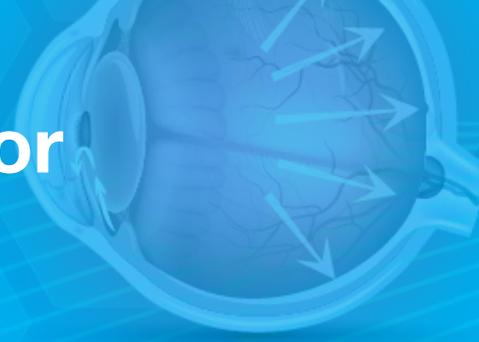
- To measure the pressure inside your eye
- An anaesthetic (painkiller) and a dye will be inserted into your eye. A light will shine into your eye to check the pressure



## Gonioscopy

To examine the front part of your eye – a fluid-filled space between the iris and cornea – and determine whether the fluid-filled space is blocked

# How will my doctor check for glaucoma?



## Visual field test

- To check for any missing areas in your vision
- You will be asked to locate a sequence of light spots in the test. If you cannot see the spots at the sides, your side vision may be affected



## Optic nerve assessments

- An eyedrop will be used to enlarge your pupils
- A slit lamp (microscope with a bright light) or an optical coherence tomography (scanner with special rays of light) will be used to observe the optic nerve at the back of your eye



# How will my doctor check for glaucoma?

Once you have been diagnosed with glaucoma, your doctor will determine the stage of the disease. Your vision may look like the following images, depending on the severity of the disease.<sup>1,2</sup>

Severity	Stage	What your vision may look like?
Early glaucoma	1	
	2	
Moderate glaucoma	3	
	4	
Advanced glaucoma	5	



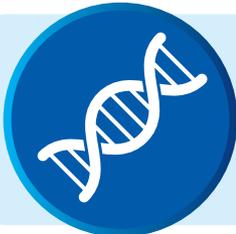
# Who gets glaucoma and how often should I get tested?



Early detection of glaucoma is key to preserving your vision, therefore getting your eyes checked regularly is important. Early signs of glaucoma and vision changes usually occur at the age of 40. You are more likely to get glaucoma if you:



- are aged 60 years and above



- have a family history of glaucoma

- are African, Asian or Hispanic descent
- use steroid medications
- have high eye pressure
- have a thin eye pressure
- have a thin central cornea
- have had an eye injury

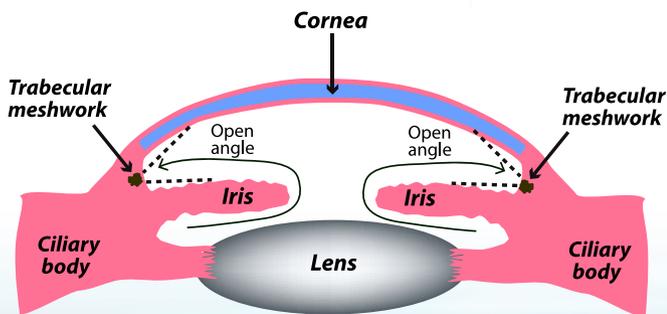


- are very near-sighted (myopia) or far-sighted (hyperopic)

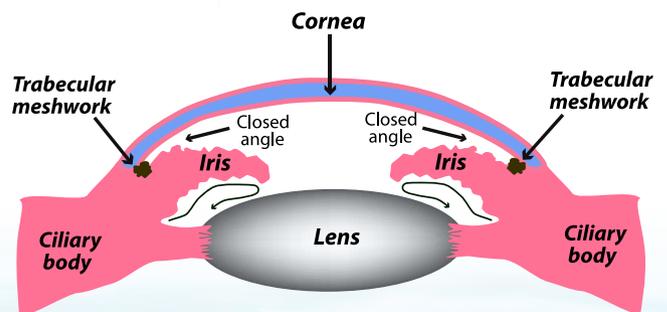


# What are the types of glaucoma?

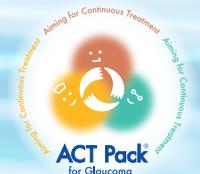
Primary open-angle glaucoma	Primary angle-closure glaucoma	Examples of other types of glaucoma
<ul style="list-style-type: none"> <li>• Most common form of glaucoma, accounts for 90% of all cases</li> <li>• The angle where the iris meets the cornea becomes clogged, resulting in build-up of fluid and increase in eye pressure</li> <li>• Develops slowly without early warning signs</li> </ul>	<ul style="list-style-type: none"> <li>• The area between the iris and the cornea is closed, reducing the fluid drainage. This leads to an increase in eye pressure</li> <li>• Often occurs gradually without symptoms</li> </ul>	<ul style="list-style-type: none"> <li>• Normal-tension glaucoma: Optic nerve is damaged even though the eye pressure is not high</li> <li>• Secondary glaucoma: Increased eye pressure due to eye injury, inflammation or certain drugs</li> </ul>



Open-angle glaucoma



Angle-closure glaucoma

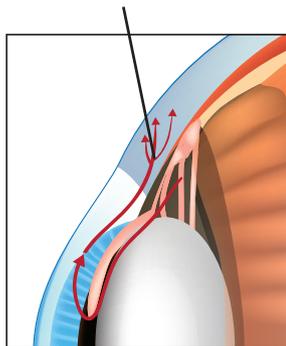


# What are the causes of glaucoma?

Most cases of glaucoma are known to be caused by a build-up of pressure inside the eye when the fluid in the eye (also known as aqueous humor) is unable to drain out properly. The increase in pressure damages the nerve at the back of the eye (optic nerve), resulting in vision loss.

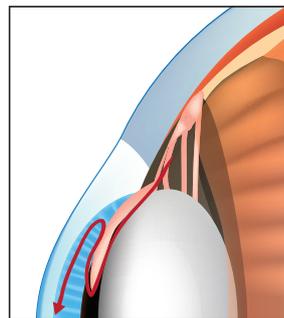
Flow of aqueous humor

Normal drainage channel

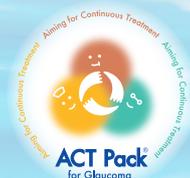
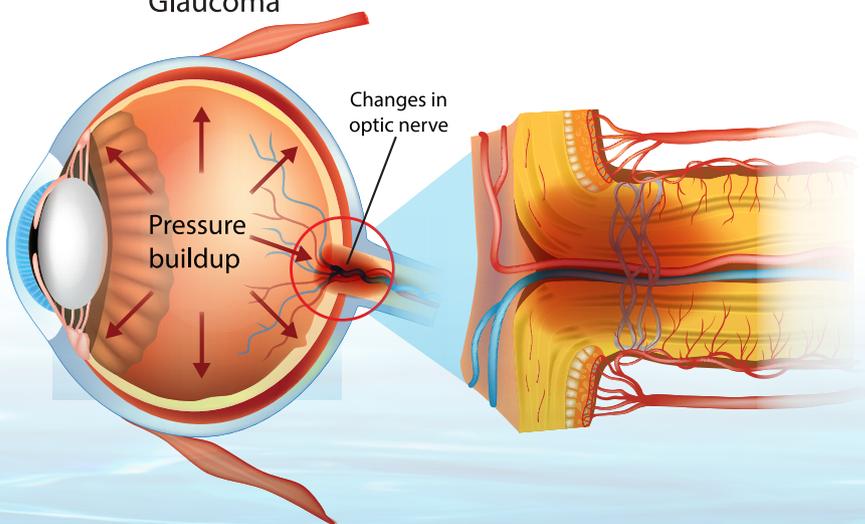
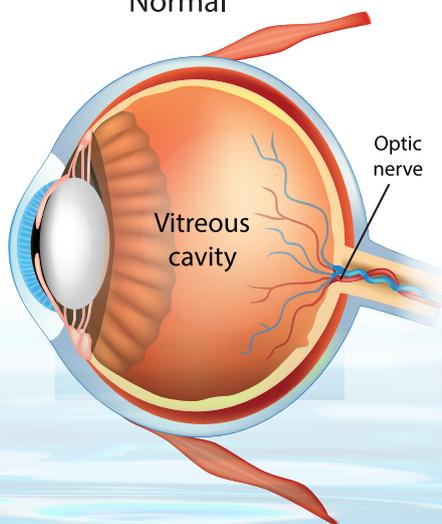


Normal

Blocked drainage channel



Glaucoma



# What are the symptoms of glaucoma?



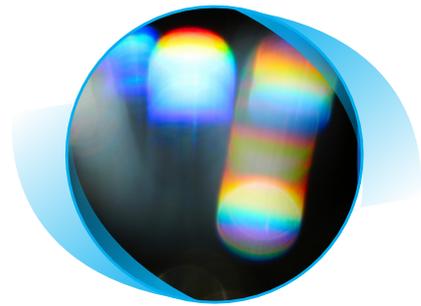
- In most glaucoma cases, there may be no subjective symptoms to warn you, particularly in primary open-angle glaucoma, the most common type of glaucoma.
- The optic nerve is damaged slowly, and the field of vision (visible range) gradually narrows, so you will not feel any abnormalities in your vision.
- Usually, the initial loss of vision occurs in the side vision while your central vision is maintained until the late stage of glaucoma.
- The symptoms of glaucoma can include the following:



Hazy vision



Eye and head pain



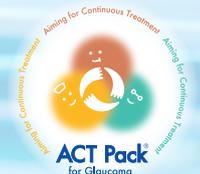
The appearance of rainbow-coloured circles around bright lights



Nausea or vomiting



Sudden vision loss



# What are the treatments available for glaucoma?

Glaucoma treatment aims at lowering pressure in your eye (known as intraocular pressure) and this can be achieved using laser surgery, medications, incisional surgery or combination of these.<sup>1</sup> Your treatment plan will depend on the type of glaucoma you are diagnosed with.

## Eye drop medications

Eye drops medications help the fluid in the eye drain better or decrease the production of the fluid.<sup>1</sup> There are a few classes of glaucoma medications, including:<sup>1</sup>

- prostaglandin analogues
- beta-blockers
- alpha agonists
- carbonic anhydrase inhibitors
- rho kinase inhibitors



### What?



Preserved and preservative-free eye drops<sup>2</sup>

### When?



Before and after surgery<sup>2</sup>

### Why?



Most common and effective in a majority of patients<sup>2</sup>



# What are the treatments available for glaucoma?

## Laser surgery

Your doctor uses a special eye drop to numb your eye.<sup>1</sup> A contact lens gel will be placed on your eye to help direct a laser light onto the drainage canal in your eye, which will lower your eye pressure.<sup>1</sup>

### What?



Selective laser trabeculoplasty<sup>2</sup>

### When?



- Failed medical therapy<sup>2</sup>
- As primary treatment<sup>2</sup>

### Why?



Relatively effective and non-invasive<sup>2</sup>

## Incisional surgery

If laser surgery and eye drop medications do not lower your eye pressure to the target level, your doctor may recommend incisional surgery.<sup>1</sup> It is done using a microscope and microsurgery instruments to make a cut in the eye.<sup>1</sup>

## Minimally invasive glaucoma surgery (MIGS)

MIGS uses devices to enhance outflow of fluid within the eye's drainage system.<sup>1</sup> MIGS is safe as it makes small incisions and reduces the risk of complications.<sup>1</sup>

### What?



Filtration surgery, MIGS or trabeculectomy<sup>2</sup>

### When?



- Very high IOP<sup>2</sup>
- Failed medical or laser treatment<sup>2</sup>
- Non-compliance and side effects to other treatment options<sup>2</sup>

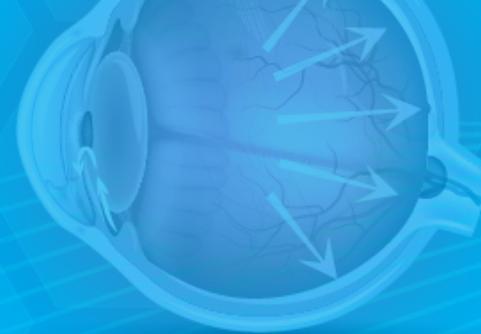
### Why?



- Widely available<sup>2</sup>
- Relatively effective and minimally invasive<sup>2</sup>

IOP, intraocular pressure

# Living with glaucoma



Being diagnosed with glaucoma may be life-changing but if you adhere to your treatment, you too can live normally. Here are some tips on how you can manage your glaucoma while keeping track of your daily routine.



**Know your medication.** If your medication is causing side effects, inform your doctor immediately.



**Make taking medication as part of your daily routine or set a reminder on your phone.**



**Keep your eyes clean and wash your hands before and after putting an eye drop medication. Do not rub your eyes.**



**Eat healthy foods and lower salt and caffeine intake.**



**Exercise regularly to stay at a healthy weight. Make time to relax.**



# Living with glaucoma



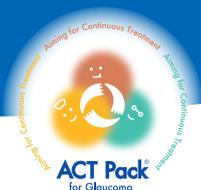
Responding to vision changes may be new to you but help is available. Talk to your doctor about your concerns and what you can do to improve your daily lives. Here are some of the questions you can ask during your next clinic appointment.

1. How will my vision affect me now and in the long term?
2. What are my treatment options?
3. What are the possible side effects of treatment?
4. How long do I need to be treated and how will I know if this treatment is working?
5. Is there any activity I should stop or avoid?
6. Is there any glaucoma support group that I can join?
7. \_\_\_\_\_
8. \_\_\_\_\_
9. \_\_\_\_\_
10. \_\_\_\_\_





This booklet serves as a guide to provide general information on glaucoma eye disease and its management. The information does not replace your doctor's opinion. Please speak to your doctor for advice and further information.



NP-GLAU-MY-0007

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