

Glaucoma Testing

- Glaucoma is a painful condition that can lead to blindness if left untreated.
- Glaucoma is less common in cats than in dogs.
- The process of measuring the pressure inside the eye is called *tonometry*. This procedure is used to diagnose glaucoma.

What Is Glaucoma?

The structures inside the eye, such as the iris and lens, are surrounded by fluid. Normally, the movement of fluid through the eye is well controlled. However, sometimes the fluid doesn't circulate normally, and fluid pressure builds up inside the eye. *Glaucoma* is the general term used to describe increased pressure inside the eye.

Glaucoma is much more common in dogs than in cats, and it can have many causes. Primary glaucoma is often an inherited genetic condition and has been identified in some dog breeds, such as basset hounds, Chihuahuas, and Siberian huskies. It tends to affect both eyes but may not occur in both eyes at the same time. Secondary glaucoma means that the pressure inside the eye was normal until another condition caused an increased pressure in the eye. Conditions that can cause secondary glaucoma include trauma to the eye, inflammation involving the eye, or a tumor inside the eye. Glaucoma can also be classified as acute (for example, occurring suddenly in response to trauma) or chronic (pressure builds up over a period of time).

Glaucoma can damage several important structures inside the eye, including the optic nerve, the retina (tissue at the back of the eye that is necessary for vision), and the cornea (the clear membrane on the front of the eye). Untreated glaucoma can also damage the lens of the eye, leading to cataracts. Injury to any of these structures, alone or in combination, can lead to permanent blindness.

Signs of Glaucoma

Whether glaucoma occurs suddenly or over a longer

period of time, the clinical signs can be similar:

- Pain (squinting, rubbing the eye or face against the floor or against furniture)
- Cloudiness or “bluish” discoloration of the cornea
- Tearing
- Red eyes
- Increased sensitivity to light
- Dilated pupils
- Unequally sized pupils
- Decreased appetite (due to pain)
- Partial or complete blindness
- “Head shyness” (reluctance to have the face or head touched/approached, due to pain and reduced vision)

How Is Glaucoma Diagnosed?

The process of measuring the pressure inside the eye is called *tonometry*; this is the test used to diagnose glaucoma. There are several ways to perform tonometry, and they all involve using a *tonometer*—a device that is applied to the surface of the eye that can help your veterinarian estimate the amount of pressure inside the eye.

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Before performing tonometry, your veterinarian will likely put a few drops of solution into your pet's eye to numb the surface of the eye (the cornea). This will improve your pet's comfort level during the tonometry procedure.

Traditional tonometers use a tiny weighted platform that is placed on the surface of the cornea. By recording how much the weighted platform causes the cornea

to indent and by comparing the reading to a standard table of pressure readings, your veterinarian can tell if the pressure inside your pet's eye is higher than it should be. This finding would be consistent with a diagnosis of glaucoma.

Newer tonometers use a very similar principle, are battery operated and are slightly easier to use and interpret. Depending on the situation, your veterinarian may want to perform a full physical examination before performing tonometry. Physical exam findings, combined with information from your pet's medical history, can provide valuable information about the possible cause of the problem and how long it has been going on. In some cases, your veterinarian may want to refer you to a veterinary eye specialist (a veterinary ophthalmologist) for tonometry to be performed and for treatment to begin.

How Is Glaucoma Treated?

Treatment of glaucoma is aimed at controlling the flow of fluid through the eye and reducing the pressure inside the eye. Glaucoma treatment may involve medication (drops placed into the eyes, pills given

by mouth, or injections given in the hospital); however, in some cases, surgery is recommended. Your veterinarian may recommend referral to a veterinary ophthalmologist for initial treatment or for long-term management.

Can Glaucoma Be Prevented?

Most cases of glaucoma are not easily preventable. Primary glaucoma (the inherited form) eventually affects both eyes (although not always at the same time), so if one of your pet's eyes is affected, your veterinarian may recommend treating both eyes to help decrease the start of glaucoma in the normal eye.

Even though glaucoma may not be preventable in many cases, early diagnosis and treatment may reduce the risk of permanent damage and blindness. Regular wellness examinations are important, as some of the early signs of glaucoma may be detected during physical exam. Also, monitoring your pet at home for any signs of discomfort or changes in attitude can also increase the chance of identifying problems like glaucoma.