

# Optic Nerve Drusen

## WHAT ARE OPTIC NERVE DRUSEN?

The optic nerve is a connection between the eye and the brain. The optic nerve acts similar to a cable wire and helps send light signals from cells in your retina (the inside back layer of the eye) to the vision centers of your brain to help us see. Optic nerve drusen are a build up of protein and calcium within the optic nerve. Drusen can be seen in both eyes, but sometimes found in only one eye. Most of the time, drusen do not cause vision problems.

The pictures below show the appearance of the optic nerve as seen by your ophthalmologist. The optic nerve is the round, yellow/pink area with the blood vessels coming out from the center. Figure 1 shows a normal optic nerve. Notice that the optic nerve is circular with sharp edges. Figure 2 shows an optic nerve with drusen. This nerve looks pushed forward with “bumpy” edges that are blurry, not sharp.



**Fig. 1:** Normal optic nerve.



**Fig. 2:** Optic nerve with drusen.

### HOW COMMON ARE OPTIC NERVE DRUSEN?

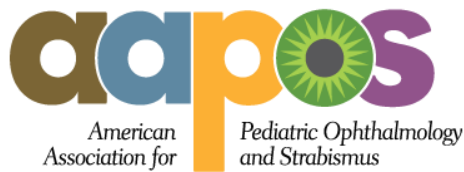
Optic nerve drusen can be seen in about 1-2% of people. Many cases go unnoticed because most patients with drusen do not have problems with their vision.

### HOW ARE OPTIC NERVE DRUSEN DIAGNOSED?

Since they often do not cause any vision problems, optic nerve drusen are usually found as part of a routine exam by your ophthalmologist. They are usually diagnosed when the ophthalmologist looks in the back of the eye. Obvious drusen show up on the surface of the optic nerve. Some optic nerve drusen are “buried” meaning it can be deeper inside the nerve. Buried drusen can be more difficult to see and diagnose. The ophthalmologist may use special tools to take pictures of the nerve to look for drusen. Tests like ultrasound, CT scan, specialized photos (fluorescein angiography/autofluorescence), or optical coherence tomography (OCT) can be helpful in diagnosing drusen. Drusen can be passed on from parents to children, so it may be helpful to examine other family members as well.

### HOW CAN OPTIC NERVE DRUSEN AFFECT VISION?

Although optic nerve drusen do not usually affect vision, peripheral vision (side vision) problems may occur. Those vision changes are usually mild and go unnoticed by the patient. Visual field exams that check the peripheral vision (side vision) may be used to monitor for problems. Choroidal neovascular membranes are an extremely rare side effect of optic nerve drusen. These are a group of abnormal blood vessels that grow beneath the retina near the optic nerve. These membranes may bleed and cause blurry central vision (vision right in the middle when looking straight ahead).



## CAN OPTIC NERVE DRUSEN CAUSE OTHER PROBLEMS?

The biggest problem with drusen is the confusion they cause. Patients are sometimes sent to an ophthalmologist for “suspicious” looking optic nerves. A suspicious optic nerve is a nerve that looks swollen. Swollen optic nerves can be a sign high pressure (known as papilledema) or other problems within the brain. Papilledema is an emergency and often needs urgent testing of the brain (CT/MRI), spinal tap (lumbar puncture), and possibly admission to the hospital to find the cause. Drusen can cause the optic nerve to look swollen when in fact they are not swollen. This is called PSEUDOpapilledema because the nerve is not truly swollen, it is the shape from the drusen deposits. These two conditions, optic nerve drusen and papilledema, may look similar but are actually very different. It can be difficult to tell the difference between them but is important to avoid an unnecessary tests. Your ophthalmologist will look directly at the optic nerves and may use special testing or pictures to help understand if there is optic nerve drusen or papilledema.

## HOW ARE OPTIC DISC DRUSEN TREATED?

There is treatment for drusen. There are treatments (like laser) for the rare case of choroidal neovascularization (see above) that can happen with drusen. Speak with your ophthalmologist if you have more questions on optic nerve drusen.

More scientific information on drusen can be found at: [https://eyewiki.org/Optic\\_Nerve\\_Head\\_Drusen](https://eyewiki.org/Optic_Nerve_Head_Drusen)

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