

The Eye with Glaucoma: In most types of glaucoma, the eye's internal drainage system becomes clogged or the iris gets apposed the peripheral cornea so there is no space for fluid to reach the drainage system. In both situation, the intraocular fluid cannot be drained out and so the fluid volume builds up, it causes pressure to build within the eye. High pressure damages the sensitive optic nerve and results in peripheral field loss and subsequently central vision loss.

What is Visual Field Loss?

Progressive loss of the optic nerve fibers leads eventually to progressive loss of visual field and finally to complete loss or blindness. However, in most forms of glaucoma, a patient will not experience any symptoms until late in the disease. Early peripheral visual field loss is not noticeable to the patient, and its slow progression makes its recognition nearly impossible without special testing. In its normal physiologic state, greater than one million fibers of the optic nerve carry visual information from retinal ganglion cells through the nerve fiber layer of the retina, along the optic nerve, and to the brain. Fortunately, there is a certain amount of functional reserve in the optic nerve so that a considerable portion, perhaps even half, of the nerve fibers can be lost before significant visual field loss occurs. This offers the opportunity for early diagnosis of disc changes before significant visual loss transpires. The functional status of the optic nerve can be assessed by specialized testing of the peripheral vision, the "visual field."

The special anatomy of the nerve fiber layer in the retina produces visual field defects from glaucoma that follow a characteristic pattern. Visual field loss in glaucoma usually arches from the physiologic blind spot of the optic disc, curves around the central region, and ends abruptly along the horizontal axis nasally. These arch-shaped defects are referred to as "Bjerrum," or arcuate, scotomas. Loss of the peripheral nasal visual field generally occurs first in glaucoma. Following the progressive change and course of these visual field defects becomes the most critical aspect of managing the glaucoma patient.