

# Optic Atrophy (Optic Nerve Atrophy)

## Description

Optic atrophy is degeneration of the optic nerve and refers to any condition causing damage to, or deterioration of, the optic nerve.

The optic nerve is the largest sensory nerve of the eye, is composed of optic nerve fibres and carries impulses for sight from the retinal ganglion cells (axons) to the brain. Anything causing damage to related cells, optic nerve, optic chiasm, or optic tract can result in optic nerve atrophy.

Characterised by paleness of the optic disc, the condition is the end stage that arises from many causes of possible optic nerve damage including genetic factors, brain injury, inflammation, infection, head trauma, degenerative disorders, toxins, hemorrhage, or tumor.

A common cause of childhood vision impairment, the condition may occur in one or both visual pathways.

## Implications

Usually resulting in irreversible loss of vision to the affected nerve fibres, optic atrophy causes a reduction in visual acuity (clarity or sharpness of vision), visual field loss, nonspecific colour vision loss (colour deficiency) and reduced contrast sensitivity.

The condition can be progressive or static depending on the cause of the damage and severity of vision loss can vary from almost mild vision loss to complete blindness.

The eyes may not lose vision at the same time.

Where there is visual field loss, individuals will need to develop eccentric viewing techniques (looking off centre or beyond the object of interest to view with their side vision) to support visual access.

Optic atrophy may be accompanied by nystagmus (involuntary eye movements).

There is no specific treatment for optic atrophy, however, treatment of the underlying condition may stabilize vision. Once the nerve has atrophied, vision loss is irreversible.

## Accessing the curriculum

Seat the student at the front of the class (toward the side of the weaker eye) to ensure the best possible view of the teaching focus.

Use additional verbal descriptions to support instruction and understanding.

Control overhead lighting to increase comfort and reduce visual fatigue caused by glare.

Consider enlarging print and the provision of dark lined paper.

Ensure all provided print and digital materials are clear, uncluttered and strongly contrasting. Contrast reversal (using white letters on a black background) may be effective for reading.

Reduce visual clutter by ensuring learning materials are well spaced and well organised on a page.

Remove unnecessary visual information and use bullet points where possible.

Allow the student extra time to process visual information, to use eccentric viewing techniques and to reduce visual fatigue. When fatigue is present, offer eye rest time.

Magnification aids may assist, however may worsen attempts for visual access.

As this document contains generic information, please consult with the Vision Education Program in regard to individual educational needs.

## References

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Ferrell, K. A. (2010). Visual development. In A. L. Corn & J. N. Erin (Eds.), *Foundations of low vision: Clinical and functional perspectives* (2<sup>nd</sup> ed., pp. 229-338). AFB Press, American Foundation for the Blind, New York.

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Schwartz, T. L. (2010). Causes of visual impairment: Pathology and its implications. In A. L. Corn & J. N. Erin (Eds.), *Foundations of low vision: Clinical and functional perspectives* (2<sup>nd</sup> ed., pp. 137-191). AFB Press, American Foundation for the Blind, New York.

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