

# Vision & the Brain: How Ataxia Affects Sight



## How the Brain Is Involved in Vision

There are two main ways the brain plays a role in vision:

1. **Processing Visual Information**

Light enters the eye, is focused by the cornea and lens, and lands on the retina, where it's converted into electrical signals. These signals travel via the optic nerve to the brain, where they are processed into the images we see.

2. **Controlling Eye Movement**

Each eye has six muscles, all controlled by the brain, allowing coordinated movement in all directions.

## How Ataxia Affects Vision

Ataxia can affect vision in two main ways:

1. **Eye Movement Abnormalities**

The cerebellum, which is impaired in Ataxia, helps control eye movement. This can cause:

- Double vision
- Nystagmus (involuntary eye movements)

*Note: Ataxia does not cause blindness.*

2. **Retinal and Optic Nerve Involvement**

In a few genetic types of Ataxia (e.g., SCA7, Friedreich's ataxia), the retina or optic nerve may be affected, reducing vision.

## What Happens in the Eye?

- Genetic causes may affect both the cerebellum and the eye.
- These changes might occur before, after, or without balance symptoms.
- The retina and optic nerve may appear normal early on, even if they aren't working properly.

A specialist such as a retina specialist or neuro-ophthalmologist can provide clearer diagnosis using tools like Optical Coherence Tomography (OCT).

## Managing Visual Symptoms in Ataxia

- Annual eye exams with an ophthalmologist
- Vitamin supplements (if prescribed)
- Low vision specialists
- Assistive resources and devices - Prism lenses should be precisely prescribed if needed.
- Research participation into treatments

## Common Vision Symptoms in Ata

- **Nystagmus** – causes vision to appear shaky or unstable. Nystagmus and ataxia symptoms may develop at different times.
- **Double Vision** – often due to eye misalignment; treated with prism lenses.
- **Difficulty Reading** – caused by inaccurate eye movements; often improved with separate glasses for distance and reading.
- **Saccades** are when we look quickly from one thing to another. These can be slowed in people with certain types of ataxia, but this usually doesn't cause any symptoms. Slow saccades are common in some types of SCA's, often without symptoms.
- **Vestibular dysfunction** can make vision shaky while walking.

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## Frequently Asked Questions

1. **Does Ataxia cause you to be nearsighted or farsighted?**  
No – glasses are needed due to eye shape, not Ataxia.
2. **Are cataracts, glaucoma, or macular degeneration related to Ataxia?**  
Usually not, except in some genetic types.
3. **Can Ataxia affect driving ability through vision problems?**  
Mostly due to motor coordination. Vision issues may impact driving in cases like SCA7.

## The Importance of Ongoing Research

Regular specialist visits and supporting research are key to improving care and outcomes for those affected by Ataxia-related vision symptoms.



**To locate a neuro-ophthalmologist visit**

[The North American Neuro-Ophthalmology Society](#)

**Visual Symptoms and Treatments for Ataxia Webinar**

<https://youtu.be/b6g0tJZbjAE>

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