

# Vision Problems

## IN MULTIPLE SCLEROSIS



A vision problem is the first symptom of MS for many people. The sudden onset of double vision, eye pain or blurring can be terrifying, and the knowledge that vision may be compromised makes people with MS anxious about the future. Fortunately, the prognosis is good for recovery from many vision problems associated with MS.

Blindness can occur, but is very rare. More people are faced with the need to accommodate to persistent vision changes. If vision problems do persist, resulting in permanent low vision, there are resources and tools to help people

adapt. Some have even turned vision problems into advantages. Flo Fox, a photographer living with MS in New York City, says that her adaptations helped her to become a better photographer, and she has taught other people with vision problems how to use various types of cameras adjusted to their abilities.

This document discusses the main MS-related eye problems, but people with MS may have other eye problems, just like anyone else. Regular eye care and periodic examinations are important for everyone.

# MS-Related Vision Problems

**Optic neuritis**, an inflammation of the optic nerve, is the most common visual disorder associated with MS. Symptoms of optic neuritis include blurred vision, dimming of colors, pain when the eye is moved, blind spots and lessening of ability to see contrast (contrast sensitivity). Double vision (**diplopia**) and involuntary movement of the eyes (**nystagmus**) are other common problems, both linked to inflammation of brain stem areas that control movements of the eye. Diplopia disturbs vision by producing double images. Because seeing double can affect a person's sense of orientation in space, diplopia may interfere with balance. Nystagmus reduces vision in a number of ways, including oscillopsia: an experience of the world "wiggling." The wiggling may be horizontal or vertical, and may occur in one eye, or both. It typically causes impaired vision and, often, loss of balance. These three disorders are not linked to each other and usually occur separately.

## Optic Neuritis

Optic neuritis is a type of MS relapse that affects one or both optic nerves. The symptoms of eye pain and blurred vision may worsen over the first few days to two weeks, and then gradually improve. Some

people recover within a month, others need up to a year. Most people regain normal or close-to-normal sight. However, the quality of their vision, including color or depth perception and contrast sensitivity, may be reduced after an episode of optic neuritis.

Temporary worsening of vision may also occur after recovery from optic neuritis. Hot showers or baths, exercise, a bout of flu, or a fever may all trigger dimmed color, blurred vision, and other problems. Nerve fibers that are demyelinated (have lost their myelin insulation) or are remyelinating (under repair) are very sensitive to higher temperatures. These heat-related symptoms resolve when the person cools off, be it from ice packs, over-the-counter fever reducers, cool drinks, air conditioning or a soak in a cool tub of water. "The symptoms mean the optic nerve is not conducting information as well as it should," said Dr. Gregory P. Van Stavern, a neuroophthalmologist at Washington University in St. Louis. "This doesn't mean a person is having a new attack of MS. If symptoms persist for more than a day or so after the body temperature has returned to normal, then contact a physician."

## Treatment

In the Optic Neuritis Treatment Trial (ONTT), high-dose intravenous steroids were shown to accelerate recovery from visual symptoms and to delay

development of MS. Dr. Roy W. Beck, executive director of the Jaeb Center for Health Research in Tampa, Florida, who was principal investigator, said “Intravenous corticosteroids at the time of a first episode of acute optic neuritis appear to have a short-term beneficial effect... delaying the time to the development of a second demyelinating event, and therefore a diagnosis of definite MS. However, there did not appear to be a long-term benefit from a single course of IV steroid treatment.” The ONTT also found that people treated with oral steroids did not do as well as those that had intravenous treatment or were not treated at all. Oral steroids apparently **increased** the risk of recurrence.

If the initial symptoms of optic neuritis are mild, a doctor may decide to allow the disorder to resolve on its own. And the same is true for subsequent episodes of optic neuritis; mild symptoms can be left untreated while symptoms that are severe enough to interfere with everyday activities are generally treated with high-dose steroids.

Intravenous immunoglobulin (IVIG) may be an option for people who are unable to take steroid medications. Although a study at the Mayo Clinic had inconclusive results as to the efficacy of IVIG as a treatment, Dr. Elliot Frohman, associate professor of neurology and director of the MS Program at University

of Texas, Southwestern Medical Center in Dallas, recommends IVIG for people with MS who have diabetes, are manic-depressive, or cannot tolerate steroids for other reasons.

There is little information on the effectiveness of complementary therapies for vision problems, but some people report relief from vitamin B-12 shots during an optic neuritis episode. “We know optic nerve function depends on vitamin B-12 and folate,” said Dr. Thomas R. Hedges, III, professor of ophthalmology and neurology at Tufts University School of Medicine and the director of neuroophthalmology at the New England Medical Center. “I encourage people to take multivitamins.” According to Dr. Frohman, anyone coming in for a vision problem should be screened for vitamin B-12 levels, as a deficiency can mimic symptoms of MS. Some people with progressive forms of MS develop persistent optic nerve problems, even without having had attacks of optic neuritis. Over the years, vision may worsen in these individuals, in spite of MS treatment.

### Low-Vision Specialists

While the prospect for recovery from optic neuritis is generally good, there are times when vision problems persist. Poor vision caused by optic neuritis cannot be helped with eye glasses because the problems are caused by poor

nerve conduction. If problematic vision loss continues, a low-vision specialist can analyze your visual function and recommend aids and strategies to help you make the most of the vision you have.

Low-vision specialists are licensed doctors of ophthalmology or optometry. The specialist will assess how your eyesight functions in day-to-day living — not just how well you do on an eye chart exam. He or she may ask questions about glare, contrast, sensitivity to light, and color perception. In addition, special charts may be used to measure other aspects of your vision. A typical session with a low-vision specialist lasts two to three times longer than a standard eye exam.

The low-vision specialist will want as much information as possible — not only about your medical and vision history, but your individual needs. If you have an occupational need, a hobby or a favorite activity, explain it during your examination. Your low-vision specialist may be able to prescribe or recommend an optical device, such as microscopic or telescopic eyewear, a magnifier, a filter or a closed circuit television (CCTV) system, that fits your specific needs.

## Diplopia (Double Vision) and Nystagmus

Double vision may lead to impaired depth perception, imbalance, and difficulty reading, walking and driving. If double vision occurs as part of an MS relapse, it is likely to resolve spontaneously and completely. Some people are left with longstanding, permanent double vision after incomplete recovery from a relapse. Progressive MS may also cause persistent double vision.

When people have nystagmus, they may feel dizzy and unsteady. They may feel that the world is moving (oscillopsia) or that they are moving abnormally (vertigo). Nystagmus may occur as a relapse symptom or as a chronic symptom of MS if recovery from a relapse is incomplete. It may be a part of progressive MS particularly in individuals with poor vision.

### Treatment

Anyone with double vision or nystagmus must be evaluated by an ophthalmologist, neurologist, or neuro-ophthalmologist, to determine the cause of the double vision. If the double vision or nystagmus are due to a relapse of MS, the relapse may be treated with steroids in order to shorten its duration.



Persistent diplopia may be treated with spectacles with temporary press-on (Fresnel) prisms. If the temporary prism is effective for an extended period of time, the prism can then be ground in to a new pair of spectacles.

“If there’s misdirection, sometimes we can adjust the muscles surgically to realign the eyes. If all else fails, patching — or just applying frosted tape to the inside of one eyeglass lens can reduce double vision,” Dr. Hedges said. He emphasizes that people with double vision don’t need to alternate the patch from eye to eye. “Patching an eye will not affect the vision in any way and will not delay recovery to any significant degree. The brain always tells both eyes to move at once,” he said. In addition, it doesn’t matter which eye is patched. “Patch whichever eye helps you to see better,” he advises.

Persistent nystagmus is more difficult to treat. Treating nystagmus may improve visual acuity and diminish oscillopsia, and may also improve the sense of equilibrium as well. First-line treatment of nystagmus involves maximizing a person’s spectacle prescription. Dr. Van Stavern and Dr. Hedges agree that medications for ongoing nystagmus may be tried, but, often do not work well. Surgery may be an option but is rarely used to treat nystagmus. In difficult cases, prisms, strabismus surgery, and Botox injections can be used. According to Dr. Hedges, work is being done on optical devices to stabilize the jiggling visual environment of people with nystagmus.

## Living with Low Vision

If your vision has become permanently impaired, changes in your home and work place can make you more comfortable and productive.

- Organize your possessions so that they are easier to find.
- Increase your lighting levels, and make sure that important areas, such as your desk, dressing area, and stove, are well lit. The type of lighting can also make a difference — experiment to find out what works best for you.
- Eliminate glare by moving mirrors and shiny objects.
- Heighten contrasts using paint or colored tape to mark light switches, doorways, and steps.
- Use large print. Newspapers, books, clocks, telephone dials, calendars, playing cards — virtually everything printed may be available in a large-print version.
- Be practical: carry a flashlight to movies; find out where the bathroom is ahead of time when eating out.
- Learn to ask for help when you need it. While hard at first, this is also very practical.

According to Dr. Frohman, both diplopia and nystagmus can affect your navigation and balance. “Added to a little bit of leg weakness or gait imbalance, and these vision problems can increase one’s safety risk,” Dr. Frohman said. He notes that patching one eye affects a person’s depth perception, so a cane or other mobility aid may be essential to prevent accidents.

# Low-Vision Aids

Many optical devices have specific uses. One may be best for reading e-mail, another for watching movies, and yet another for cooking or reading a book. Magnifying devices are a case in point. A higher power magnifier provides a larger image but a smaller field of view. A lower power magnifier will have a larger field, with a smaller image. Your needs dictate which is more important, and using your magnifier often will make it more and more helpful to you. Be patient — everyone has individual adjustment periods.

One of the more popular visual aids is the closed circuit television (CCTV) which can magnify a number of things — including photographs, letters, book pages, even the labels on medicine bottles — onto a television screen. Some CCTVs are freestanding, with a monitor that sits on a platform. Others are plugged into your television and use its screen.

Your computer and smart phone can also be modified in dozens of ways. Smartphones, tablets, and most computer operating systems offer voice command software like Siri, and programs that translate text into voice and vice versa. Text magnifiers are also available. The low Vision Gateway, at [www.lowvision.org](http://www.lowvision.org), has an extensive list of computer programs for people with low vision.

Photographer Flo Fox recommends that people with visual problems register at their local post office for free mailing.

Other resources and organizations to contact about living successfully with low vision include:

- **American Foundation for the Blind**  
800-AFB-LINE (800-232-5463)  
[www.afb.org](http://www.afb.org)
- **American Nystagmus Network**  
[www.nystagmus.org](http://www.nystagmus.org)
- **American Printing House for the Blind**  
800-223-1839  
[www.aph.org](http://www.aph.org)
- **Lighthouse International**  
800-829-0500, TTY: 212-821-9713  
[www.lighthouse.org](http://www.lighthouse.org)
- **The Low Vision Gateway**  
[www.lowvision.org](http://www.lowvision.org)
- **Low Vision Center**  
301-951-4444  
[www.lowvisioninfo.org](http://www.lowvisioninfo.org)
- **The National Association for Visually Handicapped**  
800-677-9965  
[www.navh.org](http://www.navh.org)
- **The National Federation of the Blind**  
410-659-9314  
[www.nfb.org](http://www.nfb.org)
- **The National Eye Institute**  
301-496-5248  
[www.nei.nih.gov](http://www.nei.nih.gov)
- **North American Neuro-Ophthalmology Society**  
952-646-2037  
[www.nanosweb.org/home.cfm](http://www.nanosweb.org/home.cfm)
- **Public Broadcasting Service's Descriptive Video Service**  
617-300-3600  
[www.wgbh.org/dvs](http://www.wgbh.org/dvs)

The National Multiple Sclerosis Society (“Society”) is proud to be a source of information on multiple sclerosis related topics. The information provided is based on professional advice, published experience, and expert opinion, but does not constitute medical or legal advice. For specific medical advice, consult a qualified physician. For specific legal advice, consult a qualified attorney.

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Early and ongoing treatment with an FDA-approved therapy can make a difference for people with multiple sclerosis. Learn about your options by talking to your healthcare professional and contacting the National MS Society at [nationalMSSociety.org](http://nationalMSSociety.org) or 1-800-344-4867.



**National  
Multiple Sclerosis  
Society**

**nationalMSsociety.org**

**1-800-344-4867**

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## Three Most Common Eye Disorder in MS Relapses

	<b>Optic Neuritis</b> Inflammation of the Optic Nerve	<b>Diplopia</b> Inflammation in the Brainstem or Cerebellum	<b>Nystagmus</b> Inflammation in the Brainstem or Cerebellum
<b>Main Symptoms</b>	Blurred vision	Double vision	Oscillopsia (experience of the world appearing to “wiggle”)
<b>Other Symptoms</b>	Pain with the eye movement; blind spots; loss of contrast sensitivity; poor color vision	Dizziness, unsteadiness; crossed- or outward turning eye	Dizziness; jerky eye movements; unsteadiness
<b>Consult</b>	Neurologist or eye doctor	Neurologist or eye doctor	Neurologist or eye doctor
<b>Self-Help</b>	Outline doorway, stairs and steps with high-contrast markings; increase lighting levels; eliminate glare by moving mirrors and other shiny objects	Patch one eye	Mounted magnifiers; large-print books and other low-vision aids; medication
<b>Remission Expectation</b>	Good	Good	Good
<b>Recurrence</b>	Possible	Possible	Possible