

# Warning Signs of Stroke

Learn the many warning signs of a stroke. Act **FAST** and **CALL 9-1-1 IMMEDIATELY** at any sign of a stroke. Use **FAST** to remember warning signs:

**F** **FACE:** Ask the person to smile. Does one side of the face droop?



**A** **ARMS:** Ask the person to raise both arms. Does one arm drift downward?



**S** **SPEECH:** Ask the person to repeat a simple phrase. Is their speech slurred or strange?



**T** **TIME:** If you observe any of these signs, call 9-1-1 immediately.



**NOTE THE TIME WHEN ANY SYMPTOMS FIRST APPEAR.** If given within *three hours* of the first symptom, there is an FDA-approved clot-buster medication that may reduce long-term disability for the most common type of stroke.

**LEARN ABOUT MORE SUDDEN SIGNS OF STROKE AT**

[www.stroke.org/symp](http://www.stroke.org/symp)

National Stroke Association's mission is to reduce the incidence and impact of stroke by developing compelling education and programs focused on prevention, treatment, rehabilitation and support for all impacted by stroke.

A stroke is a brain attack that occurs when a blood clot blocks an artery or a blood vessel breaks, interrupting blood flow to an area of the brain. Brain cells begin to die.

**CALL 9-1-1 IMMEDIATELY IF YOU SEE ONE OR MORE SIGNS OF A STROKE.**



**1-800-STROKES**  
(787-6537)

**[www.stroke.org](http://www.stroke.org)**

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## Stroke and Vision Loss



How a stroke may  
affect your vision and  
what you can do  
about it



# Stroke and Vision Loss

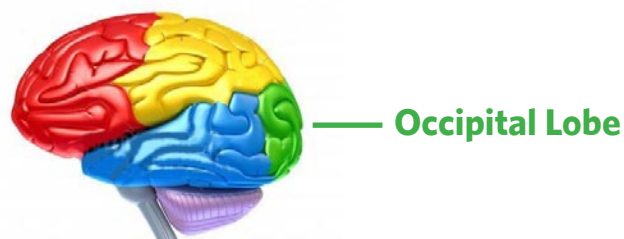
## What is stroke?

A stroke is a “brain attack” that occurs when the blood, which brings oxygen to your brain, stops flowing and brain cells die. Nearly 795,000 people in the U.S. have a stroke each year.

## How does vision loss relate to stroke?

Vision loss can be both a symptom and result of a stroke. Temporary vision loss can be a sign of impending stroke and requires immediate medical attention.

Vision complications due to a stroke depend on where the stroke occurs. The majority of visual processing occurs in the occipital lobe, in the back of the brain. Most strokes affect one side of the brain. If the right occipital lobe is injured, the left field of vision in each eye may be affected. A stroke that affects the left occipital lobe may disturb the right field of vision in each eye. Rarely, both sides of the brain are affected, which can result in blindness.

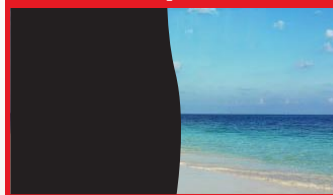


Up to a quarter of stroke survivors may have vision loss. While most stroke patients with vision loss do not fully recover their vision, partial recovery or natural vision improvement is possible, usually in the first months after a stroke. Proper diagnosis and a vision rehabilitation plan can help improve most daily activities, self-esteem and feelings of independence.

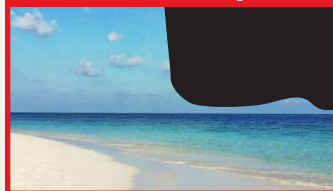
## What are the types of vision loss?

The most common type of vision loss with a stroke is loss of half of the visual field in each eye (*homonymous hemianopia*). Other types include loss of a quarter of the vision field (*homonymous quadrantanopia*) and an island-like area of blindness (*scotoma*). An automated visual field test provides proper diagnosis.

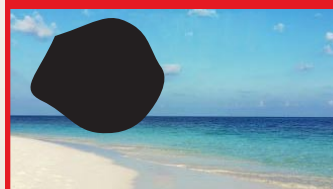
### Hemianopia



### Quadrantanopia



### Scotoma



## What are other possible vision problems following a stroke?

The brain stem is the starting point for three pairs of nerves that control eye movements. A stroke in this area can result in only one eye moving correctly. This can cause double vision or the inability of both eyes to look in a particular direction.

Also originating in the brain stem is the sensation that objects at which one is looking are moving. A stroke in this area may lead to reading difficulties because the normal sense of stability is affected.

Loss of feeling may occur on the eye’s surface, making blinking difficult, not allowing an eyelid to properly close or causing a droopy lid or blurry vision.

A stroke may also interfere with visually comprehending, understanding or recognizing objects. Visual agnosia is the inability to recognize or interpret objects by sight and often causes an inability to recognize familiar faces or objects.

## How can vision loss be treated?

A neuro-ophthalmologist or neuro-optometrist can diagnose and recommend a vision rehabilitation plan. Vision rehabilitation includes different types of therapies.



## Compensatory vision therapy

Compensatory vision therapy includes prisms, visual field awareness systems and scanning.

Prism and visual field awareness systems typically compensate for vision loss by shifting images from the non-seeing to the seeing visual field.

Scanning training is another compensatory therapy, which helps improve functional use of the remaining visual field by training the eyes to scan more efficiently toward and away from the field loss.

## Restorative vision therapy

Vision Restoration Therapy (VRT) makes use of the brain’s ability to reorganize neural connections to improve vision. It is a noninvasive neurostimulation therapy program customized for each specific type of vision loss. While the patient fixates on a central point, light stimuli are presented in a specific pattern targeting neuronal structures with the highest recovery potential.