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MATRIX NEUROLOGICAL

FACTSHEET

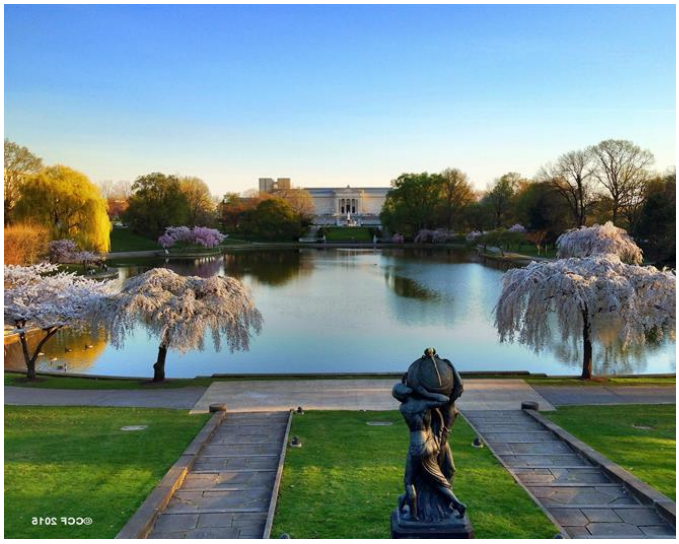
Homonymous Hemianopsia

Homonymous hemianopsia is a condition in which a person sees only one side - right or left of the visual world of each eye; results from a problem in brain function rather than a disorder of the eyes themselves. This can happen after a head or brain injury.

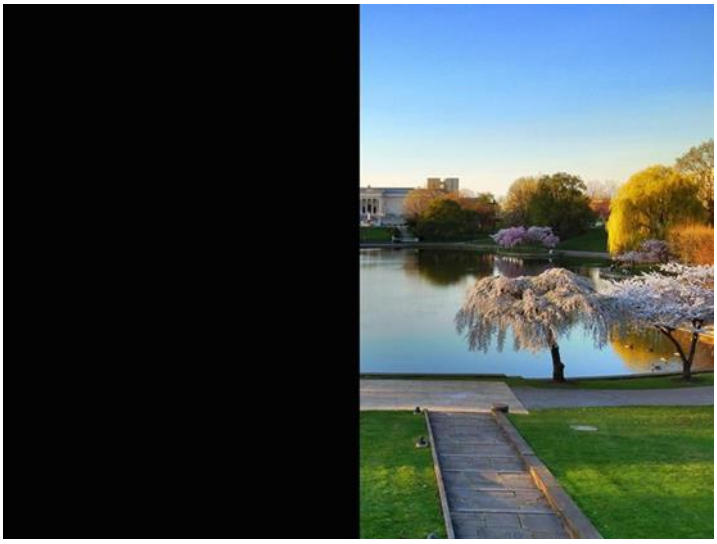
What is homonymous hemianopsia?

Homonymous hemianopsia is a condition in which a person sees only one side—right or left—of the visual world of each eye. The person may not be aware that the vision loss is happening in both eyes, not just one.

Under normal circumstances, the left half of the brain processes visual information from both eyes about the right side of the world. The right side of the brain processes visual information from both eyes about the left side of the world.



A visual world of someone with normal vision



A visual world of someone with homonymous hemianopsia

In homonymous hemianopsia, an injury to the left part of the brain results in the loss of the right half of the visual world of each eye. An injury to the right part of the brain produces loss of the left side of the visual world of each eye.

This condition is created by a problem in brain function rather than a disorder of the eyes themselves.

What causes homonymous hemianopsia?

The most common cause of this type of vision loss is stroke. However, any disorder that affects the brain—including tumours, inflammation, and injuries--can be a cause.

It is estimated that 70% of the injuries leading to hemianopsias are due to an obstruction (blockage) of the blood supply (stroke). Fifteen percent are due to tumours, and 5% are due to bleeding in the brain. Males from the ages of 50 to 70 are most frequently affected. This population is the group most likely to have diseases that affect the circulatory system.

As for the areas of the brain most affected, 40% of homonymous hemianopsias originate in the occipital (rear) lobe of the cerebral hemisphere. A total of 30% originate in the parietal (middle) lobe, 25% in the temporal (lower) lobe, and 5% in the optic tract and lateral geniculate nucleus (pathways of the optic nerves connecting the eyes to the brain).

What are the symptoms of homonymous hemianopsia?

- Bumping into or failing to notice things on the side of the hemianopsia. This can make such everyday tasks as crossing the street or driving a car unsafe.
- Missing parts of words or parts of an eye chart on the side of the hemianopsia when reading.
- Not noticing objects on a desk or table, or even food on a plate to the side of the hemianopsia.
- Frustration with reading because it is difficult for the eyes to pick up the beginning of the next line.
- Tendency to turn the head or body away from the side of the hemianopsia.
- Drifting in a direction away from the hemianopsia when walking.
- Visual hallucinations that appear in the form of lights, shapes, or geometric figures or as the image of a recognizable object. Sometimes a movement noted on the normal side of vision is believed to be also seen at the same time on the side of the visual loss.

Note: There is no correlation between homonymous hemianopsia and near-sightedness or far-sightedness. These conditions are not related.

How is homonymous hemianopsia diagnosed?

A thorough evaluation of the visual system is needed for an accurate diagnosis. A visual field exam is one in which the patient focuses on a target in front while noting lights flashed above, below, left, and right of the target. This is the most common test that is used.

Magnetic resonance imaging (MRI) of the brain is used to diagnose the underlying location and cause of the brain injury.

How is homonymous hemianopsia treated?

Treatment by a low-vision specialist deals with two main areas: improving reading ability and navigating the environment.

Strategies to improve reading ability:

- Use a straight edge to direct the eyes to the next line of text.
- Work on willingly increasing the size of small eye movements as words are read along the line of text. The goal is to capture each word in the field of vision and to recognize it as a whole before reading it.
- Place your hand at the edge of a page to make it easy to determine the margin of a page.
- Hold the text at a 45- to 90-degree angle so that reading is done vertically rather than horizontally. People with a right hemianopsia should read down, while those with a left hemianopsia should read up. In each case, this will keep the next line of text within the available field of vision.

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Strategies to improve navigating the environment:

- When moving through the environment, learn to direct the eyes toward the good visual field.
- When walking into a new environment, pause and move your head from one side to another. Observe where objects and people are located. Think about painting a picture of what you see in your brain. Practicing this, particularly in the 6 months after vision loss, can help train your brain to do this automatically.
- When looking for objects in the blind field consciously make large eye movements to that side and then let the eyes come back to the object.
- When walking, let a partner walk on the blind side and provide his or her arm for guidance.
- When in group situations, situate people in the good field of vision as much as possible.
- When in a theatre, sit far over to the blind side so that the action takes place in the normal visual field.
- Play real-life (not computer-based) card games and do crossword puzzles to regain coordination between vision and touch.
- Do word search or picture search puzzles to improve eye scanning at near distances.

Other treatments:

- Prisms on glasses may help to expand the area for central vision. A prism can displace images of objects into the field of vision.
- Some makers of computer-assisted programs claim to promote recovery of the entire field of vision. However, there are no proven studies showing such programs are effective. In addition, they are very expensive.
- Driving a motor vehicle is hazardous for many people with homonymous hemianopsia, particularly if other neurological problems are present. Practice on a driving simulator offers a chance to regain driving skills and allows an instructor to determine if the patient is able to drive again.

How can homonymous hemianopsia be prevented?

There are no guaranteed measures that will prevent homonymous hemianopsia. However, following the same guidelines recommended to prevent stroke will help prevent the majority of cases