

Vision impairment - neurological

Neurological vision impairment is loss of vision resulting from an acquired brain injury (ABI VI). Damage to the areas of the brain that are responsible for sight is involved. The many causes include stroke, brain tumour, head injury and infections such as meningitis. ABI VI used to be called cortical visual impairment and cortical blindness.

Our eyes deliver information on the world around us to various parts of the brain via nerves that detect light. The occipital cortex, situated at the rear of the brain, processes the information and allows us to see distance, shape, movement and colour.

The type and severity of vision loss depend on which area of the brain was affected and to what degree. In some cases, the impairment may improve with time – for example, children with ABI VI tend to experience improvement as they grow older.

Symptoms

Symptoms and signs of ABI VI depend on the kind of vision impairment the person has, but may include:

- Blurry or hazy vision
- Double vision
- Knocking or bumping into things
- Problems with balance or depth perception
- Photophobia (problems with bright light)
- Problems seeing an object that is obvious to other people
- Partial loss of the visual field (half of the visual field in each eye or a quarter of the visual field in each eye)
- Loss of central vision.

Common causes

Some of the many causes of ABI VI can include:

- Stroke or 'brain attack', where part of the brain is damaged by a haemorrhage or blockage in a blood vessel of the brain
- Traumatic brain injury – for example, following a car accident or fall
- Infection, such as meningitis or cytomegalovirus
- Lack of oxygen, such as near-drowning or a heart attack, which can interrupt the flow of blood to the brain
- Disease, such as a brain tumour or multiple sclerosis.

A range of vision impairments

Some of the different kinds of vision impairment caused by brain injury include:

- **Visual field defects** – such as homonymous hemianopia, when one half of the visual field in each eye is missing.
- **Double vision** (diplopia) this is where a single object is seen as two and cannot be merged together.
- **Fluctuating vision** – this means the impairment is variable; for example, the person may be able to see something one day, but not the next.
- **Visual acuity problems** – difficulties with seeing clearly or interpreting what is seen.

- **Eye movement problems** – for example, jittery eye movements or the tendency of the eyes to flicker around when the person is trying to look steadily at something (nystagmus).
- **Strabismus (squint)** one eye (or both) is unable to align properly – for example, it may turn inwards or outwards.

Homonymous hemianopia

One of the most common vision impairments is hemianopia. Hemianopia can be in one eye only or, if it is a homonymous hemianopia, one half of the visual field in each eye is affected. In the case of homonymous hemianopia, the person may describe this impairment as being unable to see out of one eye, but that is not the case. Either side of the visual field can be affected.

To the person with homonymous hemianopia, other people may appear to have only half a face. When reading, words and sentences disappear once they fall into the missing visual field. This type of vision impairment can be dangerous, because the person may not be aware of hazards on their blind side. In severe cases, they may behave as if objects on their blind side don't even exist – for example, they may only shave half of their face.

Treatment

ABI VI cannot be corrected with glasses or contact lenses, as the cause lies within the person's brain rather than their eyes.

Treatment involves managing the symptoms and depends on the type of vision impairment and its cause. Options may include:

Treating the underlying brain injury. If the brain can recover from its injury, the person's vision may also improve.

Wearing an eye patch – this can relieve double vision.

Options for managing poor visual clarity include using large print, writing with a thick black pen on a white background to heighten contrast, increasing magnification and ensuring adequate and appropriate lighting.

A person with a visual field defect can learn to use their eyes and/or head in a scanning fashion, which means moving the eyes and head back and forth to make sure they look for objects in their blind spot.

Special programs, such as the Acquired Brain Injury Mobility Service provided by Guide Dogs Victoria, are available to people with ABI VI.

Acquired Brain Injury Mobility Service

The aim of the Acquired Brain Injury Mobility Service is to help the person with ABI VI achieve independence. The rehabilitation program includes:

Individually tailored programs

Information on the vision impairment

Suggestions on how to make the most of the remaining visual field – for example, learning the 'scanning' technique

Advice on managing the vision impairment, including strategies to negotiate obstacles in a room and to safely cross the road

Training to develop the use of the other senses – for example, touch and hearing

Training, firstly in secure indoor areas and progressing in stages to crowded and hard-to-negotiate areas such as shopping centres

The program is available free of charge to both the client and their carers.

Accommodation is available in the residential training centre, known as Arnold Cook House, if necessary.

Where to get help

- Your doctor
- Neurologist
- Rehabilitation specialist
- Acquired Brain Injury Mobility Service, Guide Dogs Victoria Tel. (03) 9854 4467 – contact the Referrals Officer
- BrainLink Tel. (03) 9845 2950 or 1800 677 579

Things to remember

- Vision impairment related to an ABI is loss of vision caused by damage to the areas of the brain that are responsible for sight.
- Glasses or contact lenses generally won't help because the vision impairment is due to damage to the brain and not the eyes.
- In some cases, glasses may help to improve double vision, through the use of prisms.
- Treatment involves managing the symptoms and depends on the type of vision impairment and its cause.

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Guide Dogs Victoria

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