



# PRIMARY eyecare

## ACQUIRED BRAIN INJURY & HIDDEN VISUAL PROBLEMS

Essentially, Acquired Brain Injury is an insult to the brain. It can result from a blow to the head, stroke, or neurological dysfunction. This can produce a diminished or altered state of consciousness, and may result in impairment of cognitive abilities, interference in sensory processing and/or the sensory-motor feedback loop. There can also be loss of physical function. Impairments may be mild or severe; most are amenable to rehabilitation. Acquired Brain Injury can come in many forms. Below are some common diagnoses:

- Traumatic Brain Injury
- Mild Acquired Brain Injury
- Mild Closed Head Injury
- Post-Concussive Syndrome
- Cervical Trauma Syndrome
- Post-Traumatic Vision Syndrome
- Stroke
- Cerebral Palsy
- Cerebral Vascular Accident

Acquired Brain Injury that may cause visual problems can occur as a result of the following:

- Cerebrovascular accident (stroke)
- Sporting head injuries and concussion
- Motor vehicle / motor bike accident
- Assault including gunshot wounds
- Bicycle or skateboard accident
- Drowning / electrical shock / poisoning
- Whiplash
- Falls

Often visual problems resulting from Acquired Brain Injury are overlooked during initial treatment of the injury. Frequently these problems are hidden and neglected as life-threatening conditions are dealt with. If this continues for several months as the individual recovers, adaptations to their visual limitations can cause a lengthening and impairing of a more complete rehabilitation.

Vision problems and symptoms are among the most common difficulties associated with Acquired Brain Injuries. The nerve systems that control the way the eyes work and focus together, transmitting the visual information to the back of the brain for understanding of our visual world, are the most complex systems of the brain. Vision enables us to be aware of our surroundings and to know where we are in our world, to steer our walking through our environment, to direct hand and other actions to write and hold things, and to help us stay balanced. Since vision systems are in many parts of the brain, any insult to the brain can possibly lead to significant effects on a person's ability to read, drive, walk and work.

**Symptoms** indicating a vision problem are:

- Double vision
- Blurred vision
- Poor reading comprehension
- Reduced ability to concentrate on sustained visual tasks such as reading
- Headaches and fatigue, particularly with visual tasks or in bright light
- Dizziness, and/or attention and concentration difficulties
- Difficulty reading; words may appear to move
- Sore or aching eyes
- Sensitivity to light

The **signs** of such eye problems can include:

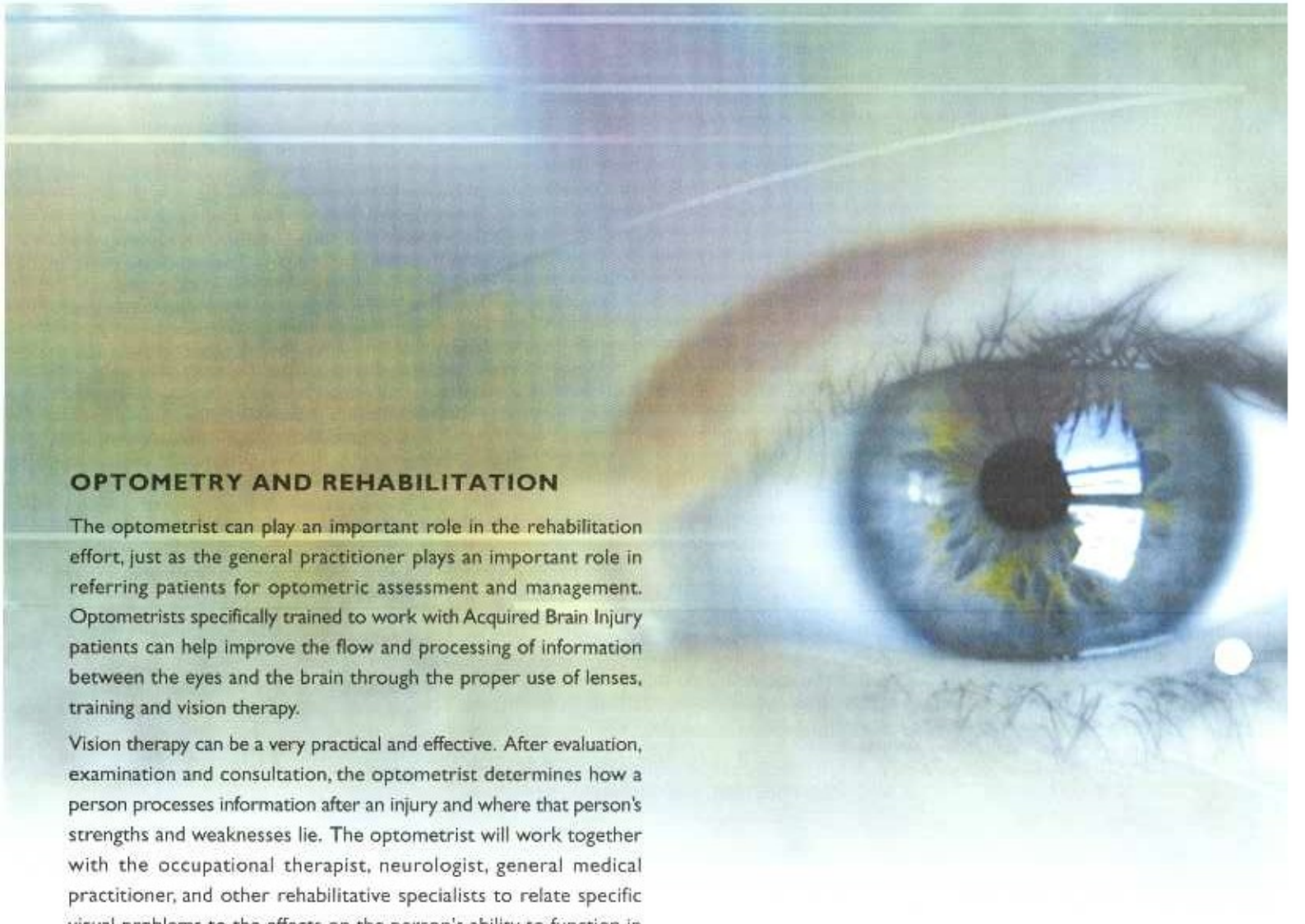
- Eyes turn (strabismus)
- Eyes flickering quickly (nystagmus)
- Closing or covering one eye
- Eyelid drooping
- Turning or tilting head
- Difficulty walking straight
- Bumping into objects
- Balance and co-ordination problems
- Poor depth judgement
- Poor eye-hand co-ordination
- Poor awareness of surroundings

*"Optometrists can play an important role in the rehabilitation effort. Vision therapy can be very practical and effective."*

### *Absence Of Evidence Is Not Evidence Of Absence:*

*Frequently, Acquired Brain Injuries can cause significant difficulties for people in using vision to walk, work and read, and yet there may not be any medical evidence (observable with X-rays, MRI, etc.) that show damage to the vision areas of the brain. Yet the effects of brain injury on vision can significantly interfere with a person's quality of life, and ability to get better as quickly as possible.*





## OPTOMETRY AND REHABILITATION

The optometrist can play an important role in the rehabilitation effort, just as the general practitioner plays an important role in referring patients for optometric assessment and management. Optometrists specifically trained to work with Acquired Brain Injury patients can help improve the flow and processing of information between the eyes and the brain through the proper use of lenses, training and vision therapy.

Vision therapy can be a very practical and effective. After evaluation, examination and consultation, the optometrist determines how a person processes information after an injury and where that person's strengths and weaknesses lie. The optometrist will work together with the occupational therapist, neurologist, general medical practitioner, and other rehabilitative specialists to relate specific visual problems to the effects on the person's ability to function in activities of daily living, as well as the ability to benefit fully from other rehabilitative services.

**Optometric management** may include:


- Referral for medical disease to the appropriate medical practitioner.
- Spectacles for general seeing to provide clear and stable vision.
- Spectacles for near tasks such as reading and computers.
- Prisms to treat double vision, or provide more stable balance and movement.
- Total or partial patching to provide or encourage better function and comfort.
- Tints to reduce light sensitivity.
- Vision therapy to improve focusing, eye movements, eye teaming, and eye-hand co-ordination.
- Counselling and education of patient, family, and caregivers about the patient's visual problems, functional implications, goals, prognosis and management options.
- Consultation with other professionals involved in the rehabilitation and health care of the patient.

**Optometric evaluation** of a person with acquired brain injury may include:

- Comprehensive eye health assessment.
- Refraction to measure eye power and assessment of focusing ability.
- Assessment of binocular vision function, to ensure single vision depth perception.
- Low vision assessment to maximise reduced vision.
- Visual field assessment to detect any loss of vision or awareness in the periphery.
- Assessment of effects of vision on balance, posture, movement and eye-hand co-ordination.
- Visual information processing.

When vision is working well it directs our actions accurately and effectively but when it is not working efficiently then it can interfere with every task we attempt.

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