



Traumatic Brain Injury Optometry and Rehabilitation

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Very few in the health care professions, including head trauma rehabilitation centres, are adequately aware of visual problems resulting from Traumatic Brain Injury and the visual-perceptual consequences.

Unfortunately, this creates a gap in rehabilitative services, resulting in incomplete treatment and frustration for the patient, family and treatment team.

The vision care professional can play an important role in the rehabilitation effort.

Through vision therapy and the proper use of lenses, a behavioural optometrist specifically trained to work with Traumatic Brain Injury patients can help improve the flow and processing of information between the eyes and the brain.

Vision therapy can be 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 then prescribes a treatment: which may include lenses, prisms, low vision aids and optometric vision therapy designed to improve control of a person's visual system and increase vision efficiency. This in turn can help support many other activities in daily living.

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

Essentially, Traumatic Brain Injury is damage 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, sensory processing and/or physical function. Impairments may be mild or severe; most are amenable to rehabilitation.

Specific effects can be:

- Disturbance of behavioural or emotional functioning
- Partial or total functional disability
- Physiological maladjustment
- Visual dysfunction

Hidden visual problems

Often, visual problems resulting from Traumatic Brain Injury are overlooked.

Frequently these problems are hidden and neglected. This makes rehabilitation longer and less effective.

Vision is the most important source of sensory information. It consists of a complex set of interconnecting sub-systems, which are used by the visual process. Processing the vast amount of information is easily disrupted.

Symptoms indicating a vision problem are:

- Blurred vision
- Sensitivity to light
- Reading difficulties; words appear to move
- Comprehension difficulty
- Attention and concentration difficulty
- Memory difficulty
- Double vision
- Aching eyes
- Headaches with visual tasks
- Loss of visual field



Good visual skills good vision

Good visual skills are necessary for efficient information processing.

When processing visual information is difficult, one may “try harder,” straining without even knowing it because the effort is subconscious. If the visual system is inefficient, every task can seem difficult, using more energy than required.

Visual skills affected by Traumatic Brain Injury include:

TRACKING

The ability of the eyes to move smoothly across a printed page or while following a moving object.

FIXATION

Quickly and accurately locating and inspecting a series of stationary objects, such as words while reading.

FOCUS CHANGE

Looking quickly far to near and back without blur.

DEPTH PERCEPTION

Judging relative distances of objects – how far or near they are.

PERIPHERAL VISION

Monitoring and interpreting what is happening in the surrounding field of vision.

BINOCULARITY

Using both eyes together as a team - smoothly, equally and accurately.

MAINTAINING ATTENTION

Keeping focused on a particular activity while interference, such as noise, is present.

VISUALISATION

Accurately picturing images in the “mind’s eye,” retaining and storing them for future recall.

NEAR VISION ACUITY

Clearly seeing, inspecting, identifying and understanding objects viewed within arm’s length.

DISTANCE ACUITY

Clearly seeing, inspecting, identifying and understanding objects viewed at a distance.

VISION PERCEPTION

Understanding what is seen.





What is a Behavioural Optometrist?

Behavioural Optometrists are specialist optometrists, with interest in how vision affects human performance.

This includes developmental, functional and neuro-optometry.

Behavioural Optometrists will use a range of treatments to help their patients learn and function more efficiently.

This can be applicable for any age group, not just children. It can also be of direct benefit to those with any form of acquired brain injury.

Not all optometrists practice behavioural optometry.

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