



## VISION DYSFUNCTION IN PATIENTS WITH BRAIN INJURY

Vision problems are a frequent and serious consequence of TBI. Early visual evaluation and treatment should be recommended. It is critical that the patient, family and rehabilitation team understand the impact of the visual problems, especially as they relate to cognitive and motor functions.

### 1. What are the signs or symptoms that may indicate a vision problem:

Double vision, blurred vision, reduced ability to sustain attention on visual tasks, dizziness, headaches, eye strain, difficulty reading (loss of place, poor comprehension), eye "crossing or drifting", closing or covering one eye, bumping into objects, head tilts or turns, balance and coordination problems, poor judgment of depth.

### 2. How soon after my brain injury is diagnosed should I seek a vision evaluation?

This will depend upon the nature and severity of other injuries and the progress of rehabilitation. If there is direct injury to the eye or surrounding structures, a vision examination should be given immediately. In many cases, there is not "direct" eye injury, however, it is useful to have the initial evaluation within the first months after the injury, since it is possible that glasses or occlusion (patching) will help relieve the blurriness, double vision, and/or disorientation. Vision therapy treatment may not yet be appropriate, but lenses or occlusion (patching) may be necessary immediately. If computer assisted, cognitive rehabilitation is planned on a regular basis, the visual evaluation should be done prior to this portion of the cognitive rehabilitation.

### 3. What type of vision examination is necessary?

A comprehensive eye health evaluation is necessary to diagnose significant pathology or disease. In addition, a thorough refractive, oculomotor, binocular, accommodative, and visual perceptual evaluation should be done to determine glasses prescription, eye movement control, eye teaming, focusing efficiency, and visual processing status. Frequently, glasses prescriptions change after a TBI. The MAJORITY of survivors have binocular difficulties (problems using both eyes together). Special glasses may be prescribed for near work or other specific activities.

### 4. Will all eye doctors give the same examination?

No. Ophthalmologists (M.D.'s) are skilled in evaluating the eyes for the effects of trauma and disease. The ophthalmologist, neuro-ophthalmologist, or optometrist may be consulted early in the treatment program, especially if direct eye injury occurs. These doctors may recommend medications, surgery, glasses and/or contact lenses. Once the

patient is medically stable, the functional aspects of vision need to be thoroughly addressed, for example; what visual skills have been effected by the TBI, how are they effecting daily life and what treatment is necessary for the most efficient functioning and recovery? This type of functional evaluation is most frequently given by a behavioral/developmental optometrist (O.D.). and may take one to three hours to complete. Behavioral Optometrists are usually active in the rehabilitation process, coordinating vision care with other therapies.

5. How long will the treatment last?

Treatment of visual deficits after head trauma can take from one visit (where glasses are prescribed) to months (when vision therapy is part of the rehabilitation process).

6. What is vision therapy?

Vision therapy is an individualized program of eye, hand, and body activities directed at treatment of specifically diagnosed vision conditions. In the case of a brain injury, efforts are aimed at relearning how vision integrates with body movement and perception of the visual world. The end goals of therapy process are to relieve disorientation, blurriness, dizziness, etc., as well as to improve visual sustenance and efficiency. In most cases, vision therapy is given in thirty or forty five minute sessions, one to two times weekly.

7. Can anything be done about field loss or neglect?

Visual field loss or neglect may result in inappropriate perceptions and cause a safety risk. Appropriate scanning strategies should be taught early in the rehabilitation treatment. In addition, special types of prisms may be helpful to see things more clearly, sooner, and to increase speed and accuracy of perceptual processing.

8. How do you find a behavioral optometrist?

- College of Optometrists in Vision Development (COVD), [www.COVD.org](http://www.COVD.org) or 1888-268-3770
- Neuro-optometric Rehabilitation Association (NORA) [www.noravisionrehab.com](http://www.noravisionrehab.com)
- <http://LHellerstein.com/resources> & [www.HBVision.net](http://www.HBVision.net)

### **Summary**

Patients who have suffered neurological insult are quite complex and often a challenge. In the rehabilitation process, a patient comes in contact with numerous physicians and therapists, who play a vital role in the rehabilitation process. The optometrist is the most qualified professional to assess and rehabilitate the visual efficiency and visual-perceptual system. Vision, being our dominant sense for gathering information, needs to be evaluated early in the rehabilitation process. It is important that all patients who have suffered a TBI/stroke have a complete vision evaluation by an optometrist who has extensive experience in vision rehabilitation and functional vision care. Consultation with an optometrist by the rehabilitation team is crucial so that all health care providers have a good understanding of the patient's visual deficits and functional results. Treatment strategies can then be established, utilizing a multi-disciplinary approach. Vision treatment should be concurrent with speech, physical and/or occupational therapy. Improved visual functioning often will help speed the progress in other rehabilitative areas.