

## Post Trauma Vision Syndrome

Essentially, individuals with Post Trauma Vision Syndrome (PTVS) begin to look at paragraphs of print almost as isolated letters on a page and have great difficulty organizing their reading ability. It has been found that the use of prisms and bi-nasal occlusion can effectively demonstrate functional improvement. The use of prisms and bi-nasal occlusion can also be documented on brain wave studies by increasing the amplitude (this is like turning up the volume on your radio).

## Reading Problems Due to Visual Field Loss

Visual field loss patients often lose their place in reading. Simple techniques, like boundary marking or sticking a Post-it note along the side of a column of print, can mark the beginning or end of the column and reduce confusion.

## Convergence Disorders Affecting Reading

Patients may experience reduced convergence after stroke or head injury. Our eyes must turn in together accurately as a team to prevent double vision and eye fatigue in reading. Prisms may aid some patients. Vision therapy is a proven, effective treatment for patients with convergence insufficiency. The extent of the trauma will impact the ability to gain back full convergence control.

## Loss of Accommodation (Focusing) Affecting Reading

Young head injury patients may experience decreased focusing ability. It is often missed because at an early age doctors don't expect loss of accommodation. It happens naturally at about age 42. Individuals with reduced accommodation may benefit from bifocals and vision therapy that strengthens the focusing system.

## Alexias/Word Blindness Affecting the Ability to Read

If the patient is unable to read due to damage to areas that process reading, but can understand verbal reading, electronic machines that scan all typed print, interpret it and read it aloud to the patient are available. Talking books and reading radio are also very helpful.

## Loss of Cognitive Skills May Affect Reading and Comprehension

Patients may need to relearn their reading skills developed in childhood or the damage may be so severe as to preclude reading. Therapists may be able to re-establish reading over time. Reading problems caused by low vision occur when visual acuity is significantly impaired. High-add bifocals or low-vision devices may be indicated. Magnifiers, electronic magnification CCTVs, special and microscopic eyewear may help the patient read again.

## Eye Gaze Disorders

Patients with inferior gaze paresis may not be able to look down into the bifocal, but may read with single-vision-reading eyewear.

## Eye Movement/Tracking Disorders Affecting Reading

Eye movement disorders may also interfere with reading. As we read down a line of words, we must make a series of accurate jumps from one group of words to another. As our head or the paper moves, we must make rapid adjustments of our eye position. These rapid eye movements are mediated by the vestibular system.

## Unstable Ambient Vision

Brain injury patients may present with vertigo, sensitivity to light and extreme sensitivity to motion around them. Trying to sustain reading becomes very difficult. The patient may experience nausea, loss of attention, difficulty fixating on the words and fatigue. Unstable ambient vision is a hallmark of Post Trauma Vision Syndrome (PTVS).

## Light Sensitivity After Brain Injury

Brain injury is often accompanied by increased light sensitivity and general inability to tolerate normal glare. The problem seems to be an inability of the brain to adjust to various levels of brightness. It is as if one had a radio and the volume control was broken and you could not make the adjustments you normally do to control loudness.

## Dry Eye Syndromes and Altered Tear/Lid Function

Our eyelids work much like the windshield wipers on our cars. The lids wipe across our cornea cleaning it and constantly restoring a new layer of tear film. If the cornea is not kept moist, a dry eye may develop. It is much like chapped lips and leads to dry, burning, gritty eyes. After brain injury, the rate of blinking may slow and the completeness of the blinks may decline. The patient may be making only occasional partial blinks. This leaves the lower portion of the cornea dry and uncomfortable. The simple addition of artificial tears and reminders to the patient to blink fully and frequently can manage this problem. In severe cases, silicone tear duct plugs may be inserted to reduce the loss of tears from the eye down the normal draining tubes.