

Medical Aid Position Statement

Date:	September 2017
Medical Aid Type:	Neuro-optometry referrals, optometrist provided vision therapy and specialty eyewear for management of mild traumatic brain injury/concussion
Position:	Not Funded
Reviewed By:	Dr. Paul Eagan- CMO

Rationale: Visual symptoms are frequently reported following traumatic brain injury with the majority resolving within the first few weeks to months following injury. Simple investigations, supportive measures and reassurance by medical professionals (physicians, physiotherapy, occupational therapy) are generally sufficient to manage these symptoms.

When visual symptoms are problematic or persist, neuro- optometry services including optometric examination, vision therapy, prescription prism glasses and prescription tinted eyewear are sometimes recommended by healthcare providers in the management of concussion/mild traumatic brain injury (mTBI).

A review of the medical literature on the investigation and management of mTBI does not support routine neuro-optometry referral in the treatment of mTBI. Good quality studies which demonstrate benefit from this assessment and associated therapy are lacking and therefore neuro-optometry and vision therapy does not meet a widely accepted standard of care for mTBI.

The Ontario Neurotrauma Foundation (Ontario Neurotrauma Foundation, 2012) in the second edition of their publication "Guidelines for Concussion/Mild Traumatic Brain Injury and Persistent Symptoms, 2012" provides consensus guidance on the management of persistent vestibular and vision dysfunction following mTBI.

As part of its management approach, the ONF guidelines recommend that mTBI patients with advanced ocular health changes and complex strabismic anomalies be referred to a neuro- ophthalmologist. For those patients who are experiencing persistent changes (>90 days post injury) in accommodation, version or vergence movements, photosensitivity, and visual field integrity can be managed using rehabilitative techniques provided by qualified optometrists. The ONF guidelines do suggest that optometric vision rehabilitation (e.g. vision therapy, reading spectacles, prism spectacles, and/or tinted spectacles) can be an important modality in the rehabilitation of mTBI patients in certain situations and it should therefore be offered as a possible option for the treatment and management of persistent vision disorders. However, the evidence upon which this statement is made is not well supported.

The recommendation is based on a single, moderate quality study (Ciuffreda, et al., 2008). This retrospective study examined the treatment response to visual therapy in a carefully selected group of mTBI patients (n=33) who were on average 3.2 years after their original head injury. Although the study results were promising in this study population with prolonged visual symptoms, the applicability of this management approach to mTBI patients in the first few to several months following injury is not clear, given the fact that spontaneous symptom resolution during this time period is the norm.

The United States Department of Veterans Affairs (DVA) conducted a health technology assessment/systematic literature review (United States Department of Veterans Affairs, 2009) in which they examined the incidence and treatment of visual problems following traumatic brain injury.

The DVA review found that vision sequelae following TBI are routinely reported. In the early stages of mTBI, photosensitivity is a common complaint in almost half of all patients and this symptom can persist for several weeks especially when other cognitive complaints are present. Vision disorders such as blurred vision/diplopia and saccadic deficits in both the acute and chronic stages following injury are frequently observed. These symptoms in combination with neurocognitive dysfunction associated with mTBI generally resolve within 3 months following injury.

With regards to visual rehabilitation treatment, the review did not identify any studies in the literature which met the inclusion criteria required for evaluating the effectiveness of visual rehabilitation interventions in persons with mild TBI. For moderate to severe TBI, only 3 studies met inclusion criteria. The 3 small preliminary studies of interventions used to treat chronic visual perceptual defects in moderate to severe TBI were included, 2 of which use the same study population. None of the studies met inclusion criteria that evaluated treatment for oculomotor dysfunction. The DVA review commented that the studies were hampered by small sample sizes which

The DVA review found that there was limited/insufficient evidence for the effectiveness of rehabilitation of TBI related visual dysfunction. The final conclusion was that "given the low level of certainty in the results, there was insufficient evidence to assess the net benefits of the interventions in this review, and if offered, patient should understand that uncertainty about the balance of benefits of the interventions." (United States Department of Veterans Affairs, 2009)

References

- Ciuffreda, K. J., Rutner, D., Kapoor, N., Suchoff, I. B., Craig, S., & Han, M. E. (2008). Vision therapy for oculomotor dysfunctions in acquired brain injury: A retrospective analysis. *Optometry*, 79:18-22.
- Ontario Neurotrauma Foundation. (2012, May 31). *Guidelines for Concussion/mTBI & Persistent Symptoms: Second Edition*. Retrieved from Ontario Neurotrauma Foundation: <http://onf.org/documents/guidelines-for-concussion-mtbi-persistent-symptoms-second-edition>

United States Department of Veterans Affairs. (2009). *VISUAL PROBLEMS IN TRAUMATIC BRAIN INJURY: A SYSTEMATIC REVIEW OF SEQUELAE AND INTERVENTIONS FOR THE VETERAN POPULATION*. Boston, MA: VA Technology Assessment Program • Office of Patient Care Services.