Treatment of Vertical Heterophoria Ameliorates Persistent Post-Concussive Symptoms: A Retrospective Analysis Utilizing a Multi-Faceted Assessment Battery

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**Primary objective:** To examine the effectiveness of neutralizing prismatic lenses for reduction of headache, dizziness and anxiety in patients with persistent post-concussive symptoms and vertical heterophoria (VH).

**Background:** Approximately 5–10% of patients with traumatic brain injury (TBI) develop persistent post-concussive symptoms. Many rehabilitation/treatment modalities are tried, but are largely unsuccessful, indicating a need for more effective treatment.

**Design and method:** This retrospective study included 38 patients with persistent post-concussive symptoms, who were diagnosed by an optometric binocular vision sub-specialist with VH (a sub-set of binocular vision dysfunction [BVD] that manifests as vertical eye and image misalignment). Data was collected both before and after prism application and included validated survey instruments for headache, dizziness, anxiety and BVD symptom burden; subjective rating (0–10 scale) of headache, dizziness and anxiety severity; and a sub-analysis of the BVD survey instrument questions that pertain specifically to headache, dizziness and anxiety. Upon conclusion of treatment, subjective assessment of overall improvement of heterophoria symptoms was obtained utilizing a 10 cm visual analogue scale.

**Outcomes:** Results demonstrated marked reduction in all measures of headache, dizziness and anxiety (19.1–60.8%) and an overall subjective improvement of VH symptoms of 80.2%.

**Conclusions:** Neutralizing prismatic lenses are an effective treatment of headache, dizziness and anxiety in patients with persistent post-concussive symptoms and VH.

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