Effect of Optometric Multisensory Training (OMST) on a Patient with Post-Concussive Visual Snow Syndrome (VSS)

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Background

This is a case presentation of a 57-year-old African American female with a history of mild Traumatic Brain Injury (mTBI) with post-concussive Visual Snow Syndrome (VSS). VSS refers to the presence of visual snow, which is a dynamic pixelated array overlay in the entire visual field. This is a clinical case to show improvement in the eye movements and VSS symptoms (PCS) after receiving a month of Optometric Multisensory Training (OMST). OMST is a neuro-rehabilitation therapy that involves the simultaneous presentation of sensory stimulation in a safe and controlled clinical situation. It includes syntonic optometric phototherapy with specific wavelengths of colored light, vestibular, auditory, and somatosensory stimulation.

Case Summary

- At age 52, HB was severely hit by an apex of American football in the school hallway where she worked as a school counsellor. Following this incident, HB was diagnosed with mTBI. HB suffered from PCS such as VSS, depression with anxiety, obstructive sleep apnea, chronic migraines, vestibular dysfunction, oculomotor dysfunctions, cognitive deficit, and impairment of hearing. HB was referred for OMST treatment.
- HB's goals were to improve VSS symptoms and improve reading stamina and comprehension, writing, and memory, all of which present obstacles in activities of daily living and social relationships.
- PG received 12 days of 1-hour in-clinic OMST sessions, and on weekends, PG did two 20-minute sessions of at-home lightbox color therapy. After completing 12 days of therapy, 18 more days of at-home lightbox color therapy were performed.
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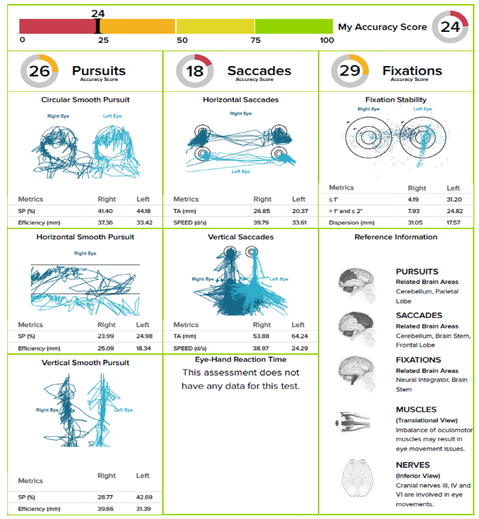
Case Summary

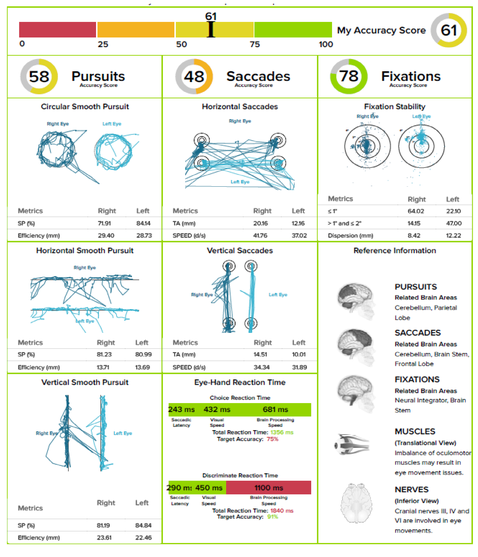
- PG's whole treatment was completed in 30 days.
- The clinical OMST includes Syntonic Optometric Phototherapy (colored light frequencies) together with vestibular, auditory, and somatosensory stimulations (Curtis, 2016, 2017, & 2019).
- No other therapeutic intervention was given during and post-OMST treatment.
- Pre- and post-OMST objective clinical assessments were performed, which included eye movement measurements.

Optometric Multisensory Table (OMST) & At-Home Lightbox

Pre-OMST RightEye™ Findings



Post-OMST 30 Days RightEye™ Findings



Results

- Post OMST, there was a significant clinical improvement in all 3 types of eye movements (EMs) (pre-training: average score 24: pursuit-26, saccades-18, fixation-29; post-training: overall average score 61: pursuit-58, saccades-48, fixation-78).
- After OMST, HB reported an 80% reduction in VSS, improvement in sleep amount and quality, vestibular dysfunction, and a 60% reduction in the overall PCS.
- HB also reported a slight improvement in reading and comprehension, and overall better information processing.

Conclusion

- HB's significant improvement in PCS correlated with improvement in objective clinical measurements, i.e., EMs scores.
- This case report provides evidence that OMST could be beneficial for clinicians in treating patients with post-concussive VSS and other symptoms

Bibliography

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