

# 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 35-year-old white male with a history of mild Traumatic Brain Injury (mTBI) causing 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 the first clinical case to show improvement in the VSS and other post-concussive 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 syntonics optometric phototherapy with specific wavelengths of colored light, vestibular, auditory, and somatosensory stimulation.

## Case Summary

- At age 50, PG suffered an industrial accident. Following this incident, PG was diagnosed with mTBI. PG suffered from PCS such as VSS, depression w/anxiety, irregular anger outbursts, obstructive sleep apnea, chronic migraines, vestibular dysfunction, oculomotor dysfunctions, cognitive deficit, and impairment of hearing. After three years of vision therapy, PG was referred for OMST treatment.
- The clinical OMST includes Syntonic Optometric Phototherapy (colored light frequencies) together with vestibular, auditory, and somatosensory stimulations (Curtis, 2016, 2017, & 2019).
- PG's goals were to improve VSS symptoms, reduce inappropriate anger outbursts, and improve reading stamina and comprehension, writing, and driving, all of which were presenting obstacles in activities of daily living and social relationships.

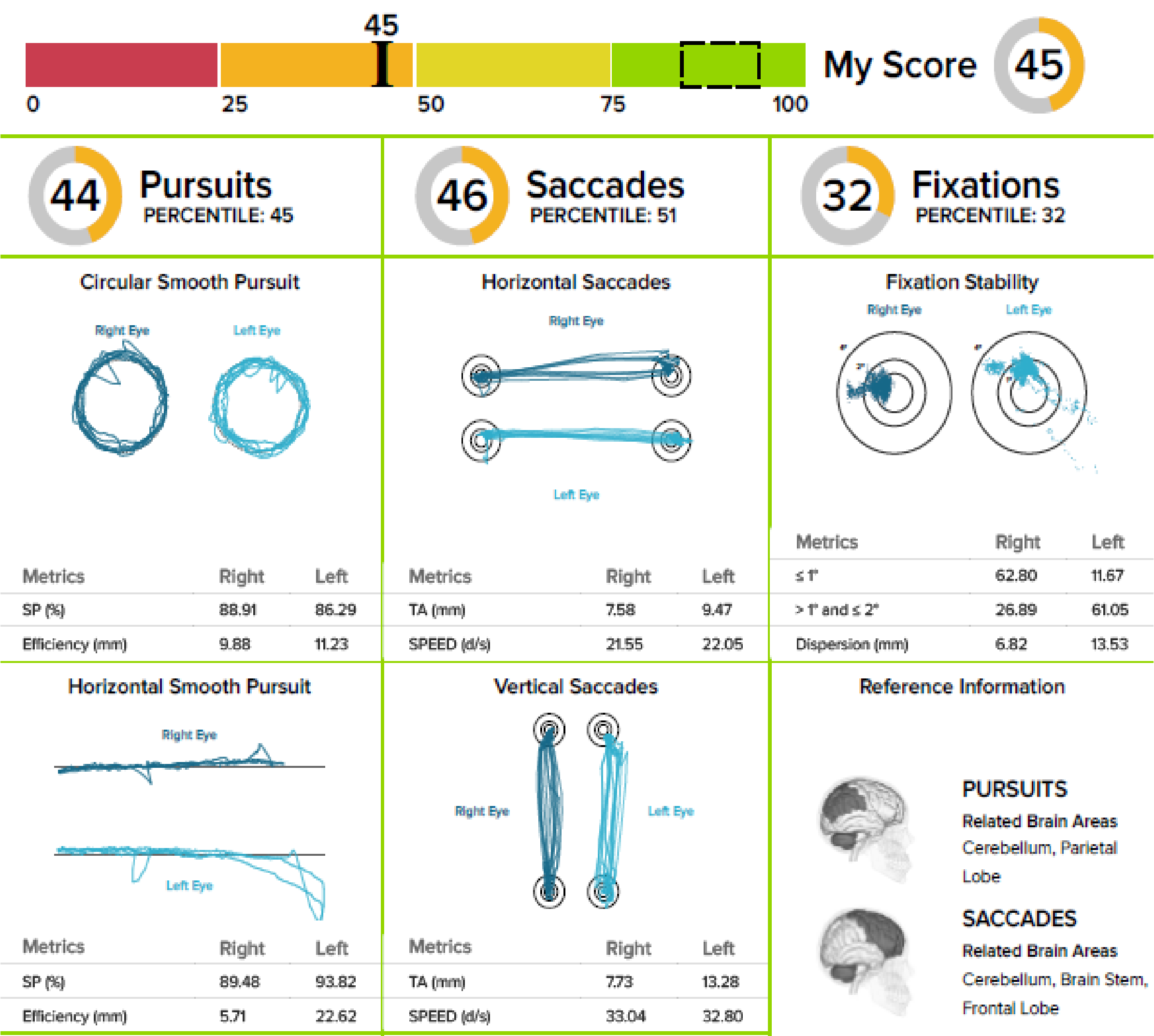
## Case Summary

- 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.
- PG's whole treatment was completed in 30 days.
- No other therapeutic intervention was given during and post-OMST treatment.
- Pre- and post-OMST objective clinical assessments were performed which included eye movement and visual-evoked potential (VEP) measurements.

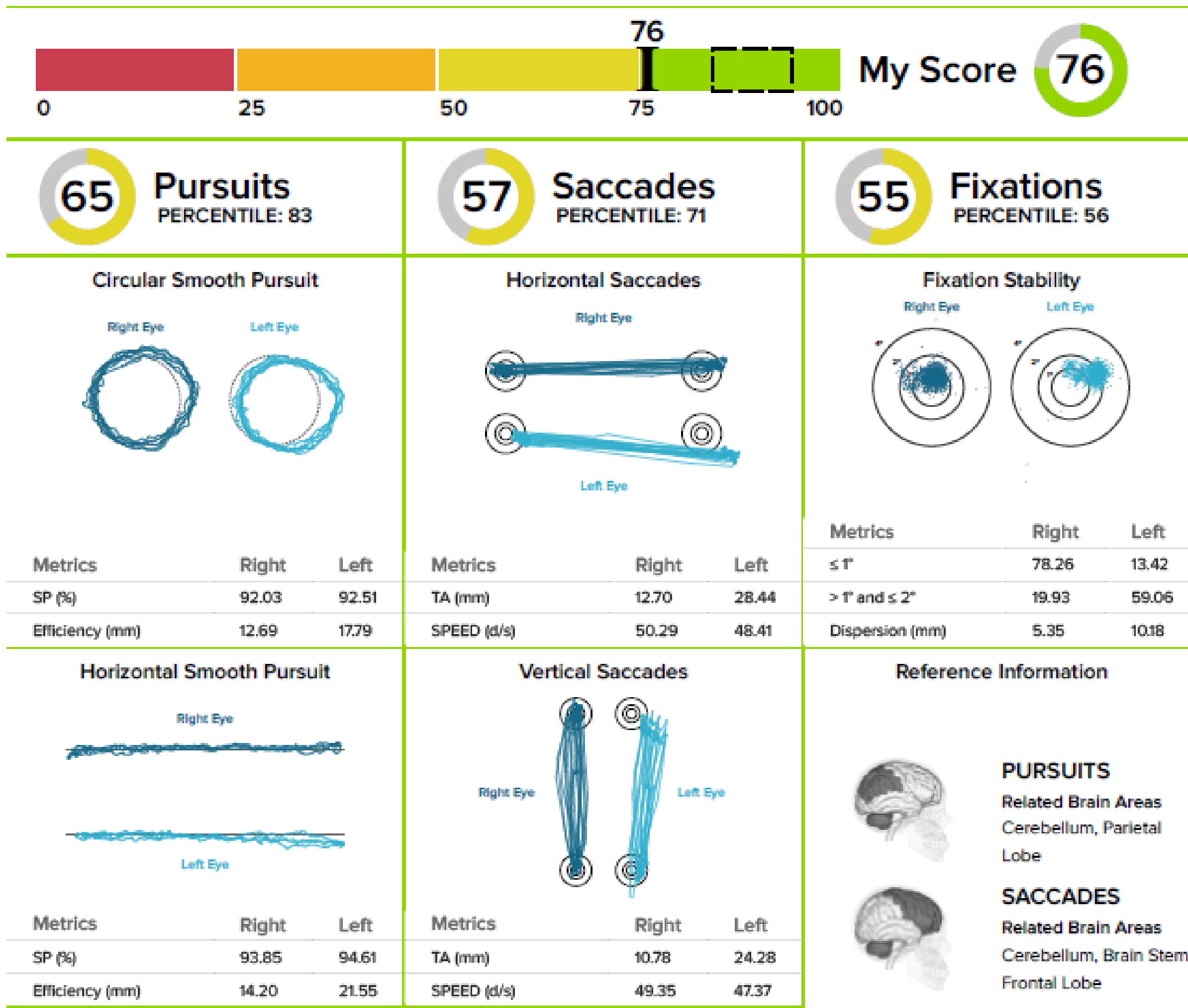
## Optometric Multisensory Table (OMST) & At-Home Lightbox



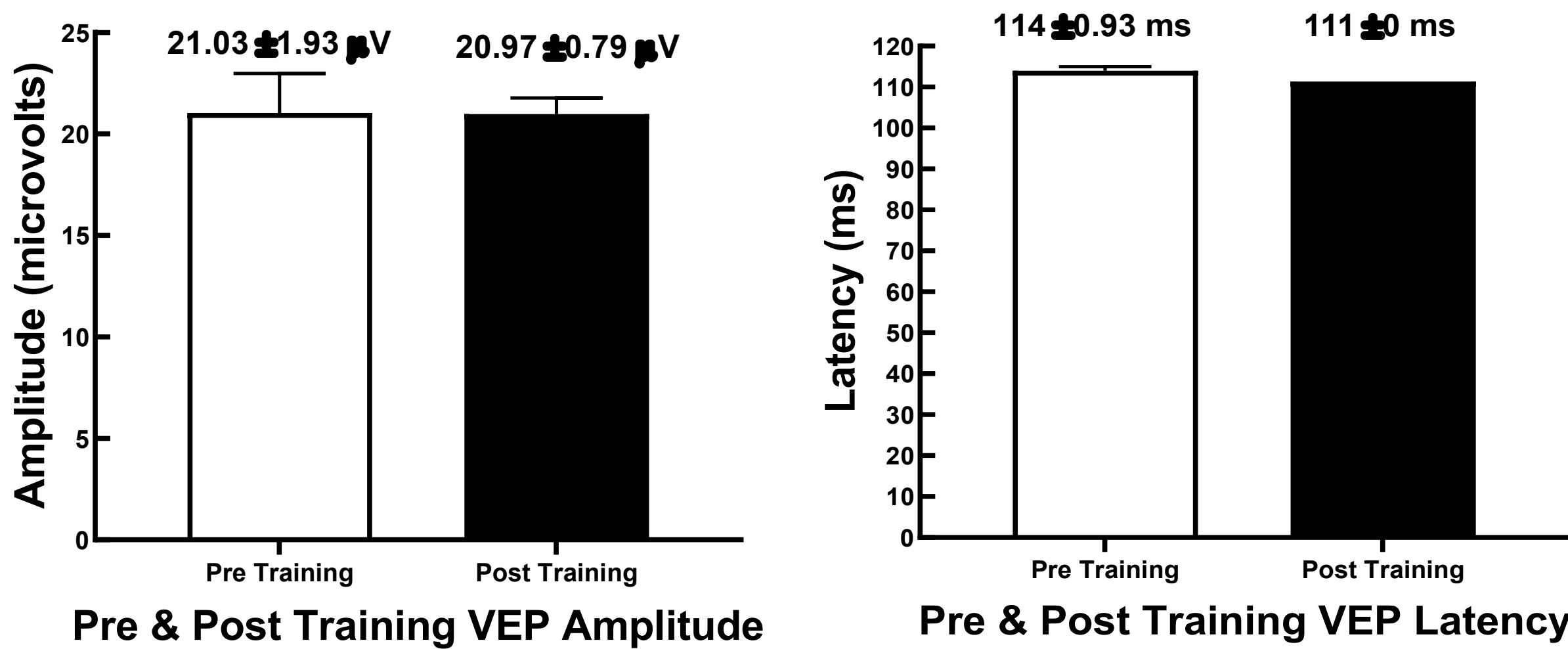
## Pre-OMST RightEye™ Findings



## Post-OMST 30 Days RightEye™ Findings



## Pre & Post OMST VEP Amplitude & Latency



Post OMST VEP amplitude remained stable, however, latency decreased by ~3 ms. Furthermore, there was also a significant reduction in variability (SD) (pre:  $\pm 1.94 \mu V$ ,  $\pm 0.94 ms$ ; post:  $\pm 0.800 \mu V$ ,  $\pm 0 ms$ ).

## Conclusions

- After OMST, PG reported a 90% reduction in VSS and the ability to self-regulate his anger, improvement in sleep amount and quality, and also a 70% reduction in the overall PCS.
- PG also reported improvement in reading and comprehension and overall better information processing.
- PG's significant improvement in PCS correlated with improvement in objective clinical measurements, i.e., EMs scores and VEP responses.
- This case report provides evidence that OMST could be beneficial for clinicians in treating patients with post-concussive VSS.

## Bibliography

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