Use of the Wayne Saccadic Fixator to encourage proper usage of Peli Prisms in hemianopia secondary to Acquired Brain Injury

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Abstract

After a patient with a hemianopia secondary to acquired brain injury is fit with a Peli Prism, a training protocol should be considered to help the patient successfully adapt and function. A series of training activities, sequences and protocols were performed using the Wayne Saccadic Fixator and the Wayne Peripheral Awareness Analyzer, to facilitate the patient’s goals. This poster explores how these activities, when coupled with the use of the Peli Prisms aided the patient.

Introduction

The Peli Prism was developed by Dr. Eli Peli in 1999. Dr. Peli is the Moakley Scholar in Aging, Eye Research at Schepens Eye Research Institute, Massachusetts Eye and Ear, and Professor of Ophthalmology at Harvard Medical School. It is on the lens that is on the same side as the defect, in the case of a left hemianopia a base left prism is used over the left lens in a patient’s pair of glasses. Peli specified the use of two prism segments; one above and below an horizontal area with no prism. Users are instructed and trained to always look through central portion of their ophthalmic lens, the area without prisms.

The Case

A 29-year-old white female was referred to the Eye Institute at Midwestern University, Arizona College of Optometry for peripheral awareness training after being fit with a Peli Prism. The patient had a homonymous left hemianopia secondary to a brain tumor. Patient’s brain tumor was located on the occipital lobe. It was not removed due to the prognosis. Surgeon thought it could cause more problems removing the tumor than leaving it in place. Her primary goal was to regain the ability to drive as well as have better use and awareness of her left side. Upon arrival to the clinic, the patient was asked to perform an Visual Fields with and without glasses at 1:44 pm.

At the start of vision therapy we put the patient on the Wayne Peripheral Analyzer, where we worked to improve oculomotor skills such as localization, fixation, gaze shift and tracking, increasing her peripheral awareness, visual attention and visuomotor reaction time. At the beginning she was achieving an average score of identifying only lights in 60 seconds. Her reaction times are recorded below.

<table>
<thead>
<tr>
<th>Initial-Baseline</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attempt #</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Time</td>
<td>1:34 pm</td>
<td>1:44 pm</td>
<td>1:55 pm</td>
<td>2:00 pm</td>
</tr>
<tr>
<td>Lights Identified</td>
<td>30</td>
<td>35</td>
<td>30</td>
<td>100</td>
</tr>
</tbody>
</table>

Following the Dynavision we put the patient on the Wayne Saccadic Fixator where she was taught to scan and appropriately use her Peli Prisms in order to see all of the lights. Using the device we were able to use different programs as well as customize some of the programs changing variables that ranged from speed to duration of the flash. Her scores are as follows:

<table>
<thead>
<tr>
<th>WAYNE SACCADIC FIXATOR: Program 9-02</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attempt # 1</td>
<td>20</td>
</tr>
<tr>
<td>Attempt # 2</td>
<td>30</td>
</tr>
<tr>
<td>Attempt # 3</td>
<td>30</td>
</tr>
<tr>
<td>Attempt # 4</td>
<td>30</td>
</tr>
</tbody>
</table>

After getting a timed baseline on the Wayne Peripheral Analyzer, she was allowed to practice and improve her skills which emphasized the technique of scanning and using her prism appropriately. The patient was instructed to quickly move her eyes to look at the light that is turned on. At this time, any amount of head movement was allowed in the refixation process; however, as the training went on the head movement was reduced to allow a wider saccade. It took her 10 minutes to correctly identify 50 lights and 26 minutes to identify 100 lights correctly.

Wayne Peripheral Awareness Analyzer

Wayne Saccadic Fixator

To end her session she was asked to identify 50 lights on the WPFA once more. It took a total of 8 minutes, which was 2 minutes faster than when she had started.

After training, the patient met the qualifications to obtain a driver’s license in the state of Arizona. She also demonstrated increased left aide awareness, reaction times and scanning ability. Peripheral awareness training using the Wayne Saccadic Fixator or similar devices should be considered when fitting/training a patient on the use of Peli Prisms. By incorporating vision therapy in the visual rehabilitation process it gives them the tools to successfully adapt to the Peli Prisms. The patient is then referred back to the original doctor and recommended to follow up with the driving rehabilitation program with an occupational therapist for behind the wheel training.

Some of the quotes by the patient that were noted during the session were as follows:

“I feel that using the Wayne Saccadic Fixator has made me more aware of my left side and don’t even have to think about it.”

“After today I am able to understand my prism a little bit better.”

“Using these devices has allowed me to scan without thinking about scanning. I do it automatically.”

Conclusion

After training, the patient met the qualifications to obtain a driver’s license in the state of Arizona. She also demonstrated increased left aide awareness, reaction times and scanning ability. Peripheral awareness training using the Wayne Saccadic Fixator or similar devices should be considered when fitting/training a patient on the use of Peli Prisms. By incorporating vision therapy in the visual rehabilitation process it gives them the tools to successfully adapt to the Peli Prisms. The patient is then referred back to the original doctor and recommended to follow up with the driving rehabilitation program with an occupational therapist for behind the wheel training.

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Wayne Saccadic Fixator

Wayne Peripheral Awareness Analyzer

Special Thanks to Paul Harris, OD, FCCVD, FACBO, FAAO, Associate Professor, Southern College of Optometry for his contribution to this poster.