

# ABSTRACT FORM -- 2016 COVD ANNUAL MEETING

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This abstract is being submitted for consideration as a:

- Poster only  
 Paper (oral presentation only)  
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Abstract Type:  Research Study  Case Study

TITLE:

**DISTANCE HORIZONTAL FUSIONAL FACILITY, A NEW DIAGNOSTIC TEST FOR POST-CONCUSSION PATIENTS: A PILOT STUDY**

**ABSTRACT:** (following applicable outline above and limited to 300 words)

**Background:** It has been documented that many post-concussion patients have nearpoint vergence, accommodative, and versional eye movement disorders. Many of these same patients also have symptoms of visual motion sensitivity, motion sickness, and dizziness which are sometimes harder to assess objectively. We report on a new diagnostic test, namely distance horizontal fusional facility (DHFF), to potentially help with the diagnosis and management of post-concussion patients.

**Methods:** The COVD quality of life (QOL) questionnaire was given to patients examined in the private optometric practice of the first author. Patients were divided into three groups:

1. Post-concussion, visually-symptomatic (PCVS, n= 38) who had a QOL score greater than 21 (mean=31.63)
2. Non-concussed, visually-asymptomatic (NCVA, n=16) who had a QOL score less than 21 mean =8.31)
3. Non-concussed, visually-symptomatic (NCVS, n=11) who had a QOL greater than 21 (mean=36.09)

All patients received a comprehensive vision and ocular health exam along with a test for distance horizontal fusional facility in which they attempted to fuse a 20/30 letter at 20 feet alternately viewing through 2pd BI/4pd BO prism flippers. The number of successful cycles per minute was recorded.

**Results:** A total of 65 patients from 9-29 years of age were tested (mean= 16.5 years of age). The PCVS group had a mean DHFF= 10.97 (SE= +/- .60); the NCVA group had a mean DHFF = 16.19 (SE= +/-1.53); the NCVS had a mean DHFF= 12.36 (SE = +/-1.58). There was a statistically significant difference in DHFF between the PCVS and the NCVA group ( $p < 0.05$ ), and between the NCVS and the NCVA group ( $p < 0.05$ ). There was also a statistically significant inverse relationship between the QOL and the DHFF test ( $p < 0.05$ ).

**Conclusions:** This pilot study demonstrates that the DHFF test may be a valuable adjunct screening test for determining symptomatic post-concussion patients. Future directions include expanding the number of patients tested and determining the sensitivity and specificity of this test in the post-concussion population.