

Improved School Performance in an Optometry Student with Divergence Excess Exophoria Through Vision Therapy: A Case Report

Stefania M. Paniccia, OD, MS¹, Nicholai Perez, BS²

¹Faculty, Inter American University of Puerto Rico School of Optometry,
²Student, Inter American University of Puerto Rico School of Optometry



Abstract

Divergence excess exophoria is a binocular vision abnormality in which there is a greater amount of exophoria at distance than at near, a high AC/A ratio, and an absence of amblyopia. Presented is a patient whose visual symptoms and school performance have improved with consistent in-office and home vision therapy.

Case Report

A 27-year-old Caucasian male presented to the IAUPR School of Optometry primary eye care clinic with a complaint of the inability to fuse images (diplopia) during slit lamp biomicroscopy. The patient indicated that he was failing lab proficiency exams and was experiencing asthenopia and headaches after laboratory sessions. His medical history was unremarkable and the patient was not taking any systemic medications. Ocular history included low hyperopic correction. No allergy to food, animals, or the environment was reported. It is significant to note that the patient had not noticed any diplopia or discomfort earlier in his academic career or adult life. The patient was a second-year student at the time of presentation.

Techniques

- Vergences
 - Brock String (stressing antisuppression)
 - Aperture Rule (convergence and divergence)
 - Vectograms and Tranaglyphs: convergence and divergence
 - Computer Orthoptics (VTS³) Random Dot program and vergence programs
 - Jump vergences
- Accommodation
 - Red Rock
 - Lens Sorting (+ and – lenses)
 - Accommodative Rock with Hart chart and balance beam
 - Computer based accommodation training
- Home Vision Therapy
 - Brock String
 - Near/Far Hart Chart with red/green glasses
 - Video game play using BO prisms
 - Eccentric circles or Free Space Fusion cards
 - Lifesaver cards

Examination

Test	Initial exam (September 30, 2013)	Concluding exam (May 05, 2014)
External/internal ocular health	(-) pathology	(-) pathology
VA sc	20/20 OD, OS	20/20 OD, OS
Dry refraction	plano OD +0.25 -0.25 x 180 OS	+0.25 DS OD +0.25 -0.25 x 180 OS
Cover test	11Δ XP 4Δ XP'	Ortho 4Δ XP'
Stereoacuity	N sc 40 sec, Randot	N sc 20 sec, Randot
NPC	6 cm/8 cm	4 cm/7 cm
NRA/PRA	+1.75/-1.50	+2.75/-2.50
Vergences distance	BI X/12/10 BO X/6/4	BI X/10/4 BO 8/18/14
Accommodative facility	6 cpm OD, OS 7 cpm OU	12 cpm OD, OS 10 cpm OU
Vergences near	BI X/14/10 BO X/8/6	BI 12/22/18 BO 22/24/20



Discussion

Diagnosis: Divergence Excess Exophoria

The patient has completed 32 weekly VT sessions in the span of 8 months. The objective of treatment was to improve fusional vergence skills at distance and near, to normalize accommodation, and to increase vergence values. During the initial VT sessions, it became evident that the patient's binocular dysfunction was frustrating. The patient was verbal about his struggles and accomplishments with each task. Emotional support was a strong component in his success; classmates and friends would attend the VT sessions weekly and encourage his progress. The patient was consistent with home VT activities, completing 2 tasks per day, 4 days per week. The patient has reached all vision therapy objectives, and is currently participating in a home vision therapy maintenance program. The patient is asymptomatic and has greatly improved his clinical and academic performance.

References

- Scheiman, Mitchell and Wick, Bruce. Clinical Management of Binocular Vision: Heterophoric, Accommodative, and Eye Movement Disorders, 4th Ed. Lippincott Williams & Wilkins 2008.
- Press, Leonard J. Applied Concepts in Vision Therapy. Mosby – Yearbook, Inc. St. Louis, MO. 1997:246-261.
- Griffin, John R. and Grisham, J. David. Binocular Anomalies: Diagnosis and Vision Therapy, 4th Ed. Butterworth-Heinemann 2002.