

Management of Anisometropia, Esotropia and Amblyopia in a Teenager Shows Optometry's Unique Role in Vision Care

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INTRODUCTION

In the presence of strabismus and amblyopia, patients are often referred to ophthalmology for management. However, an optometrist's knowledge of the entire visual system uniquely equips our profession to create a comprehensive treatment plan for these functional vision disorders, which can supplement a medical approach to care.

INITIAL COMPREHENSIVE EXAMINATION

A 13-year-old boy presented for second opinion regarding treatment options for left esotropia and strabismic amblyopia, which was previously managed by ophthalmology who determined that no improvements to his vision were possible with a traditional medical approach. Past treatments included noncompliant patching and inconsistent spectacle wear. The patient's primary concern was reduced tracking, catching and reaction time as a baseball player.

Examination revealed a constant left esotropia and anisometropic hyperopia in the left eye. The patient was habitually uncorrected with no stereopsis or flat fusion and BCVA of 20/40+ OS (see Table 1). Given his anisometropia and history of poor compliance with spectacle wear, it was recommended that the patient be fit in a daily disposable contact lens in the left eye and begin treatment with in-office vision therapy.

TABLE 1 Initial Manifest Refraction with BCVA

	Refraction	Visual Acuity
Right Eye	+0.50 -0.50 x180	20/20
Left Eye	+2.75 -0.50 x150	20/40+

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VISUAL EFFICIENCY EXAMINATION

After successfully fitting the patient in a daily disposable contact lens in the left eye (Table 5), a visual efficiency exam was completed. The pertinent results of this exam are shown in Table 2.

TABLE 2

Visual Efficiency Exam Findings

Cover Test		Prism Bar Bl Vergences	
Distance	Near	Distance	Near
4 [∆] eP	10 [∆] ILET′ (50%)	x/8/2	x/10/0
Monocula	ar Facility	Minus Le	ns Amps
4 cpm OD	0 cpm OS	11.75 OD	7.75 OS
Stereo	(+)500" Forms, (-)250" Forms		
W4D	Peripheral fusion; deep central OS suppression		

DIAGNOSES

- Intermittent left esotropia
- Refractive vs. strabismic amblyopia OS
- Accommodative excess OD

RESULTS OF VISION THERAPY

Progress evaluations were completed every 8 weeks during the vision therapy program. Improvements to the patient's visual efficiency skills found during these evaluations are shown in Tables 3 and 4. Additionally, Table 5 shows improvements to his visual acuity over time. Note that his contact lens prescription was adjusted based on his ability to accept more plus.

TABLE 3

Vision Therapy Progress Eval After 8 Sessions

Cove	r Test	Prism Bar B	I Vergences
Distance	Near	Distance	Near
Ortho	6 [∆] ILET′ (10%)	x/8/6	x/10/8
Monocular Facility		Minus Lens Amps	
16 cpm OD	9 cpm OS	12.50 OD	10.50 OS
Stereo	(+)500" Forms, (-)250" Forms		
W4D	Peripheral fusion; shallow central OS suppression		

TABLE 4 Vision Therapy Progress Eval After 16 Sessions

Cove	r Test	Prism Bar B	l Vergences
Distance	Near	Distance	Near
Ortho	6 [∆] eP′	x/10/8	x/14/10
Monocula	ar Facility	Minus Le	ens Amps
16 cpm OD	12 cpm OS	13.00 OD	11.50 OS
Stereo	(+) Forms, 30" Randot circles		
W4D	Peripheral and central fusion		

TABLE 5 Visual Acuity OS Over Time

Initial Exam	Manifest Rx	20/40+
VEE	+2.50 cls	20/30-
After 8 Sessions	+2.75 cls	20/30
After 16 Sessions	+2.75 cls	20/25

DISCUSSION

After 16 weeks of in-office vision therapy, the patient graduated with a low esophoria at near, excellent base-in vergence ranges and improved accommodative skills in both eyes. His visual acuity in the left eye improved from 20/40 to 20/25 and he demonstrated stereopsis in addition to peripheral and central flat fusion for the first time in his life. These outcomes were the result of full-time correction with a contact lens to reduce the visual effects of anisometropia in addition to weekly in-office vision therapy with daily assigned home activities. Despite the patient's age, diagnoses, and failure with previous treatments, he made tremendous improvements over a relatively short period of time. Most importantly to him, however, was his improved on the baseball field.

CONCLUSION

This case demonstrates optometry's crucial role in managing functional vision concerns. This patient was told that no improvements to his vision could be made after he failed to improve his visual acuity with traditional treatments such as full-time spectacle wear and occlusion therapy. However, an optometric evaluation considers the patient's specific, situational complaints as they relate to the entire visual system. In this case, visually significant anisometropia was resolved with contact lens wear, and the patient's overall visual skills, particularly as they related to his performance in sports, were improved with vision therapy. By introducing new treatment options, the optometric functional vision assessment resulted in resolution of the patient's symptoms and concerns.

REFERENCES

Available upon request.

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