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Abstract

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A NEAR PRESCRIPTION IN A CHILD MYOPE

A Case Report
Presented to
the Faculty of the College of Optometry
Pacific University

In Partial Fulfillment
of the Requirements for the Degree
Doctor of Optometry

by
Lowell G Dewey
January 1952

CASE HISTORY

Patient: Female, 9 years old, Forest Grove, Oregon.

Complaint: Patient gave no spontaneous complaint, but upon questioning she said people had to be quite close before she could recognize them. The child's teacher sent a card to the mother to have the child's "vision checked" because she "squinted in class" (narrowing of palpebral fissure). The mother also noticed that her daughter "squinted" while performing visual tasks. The mother stated that the patient held her reading material quite close to her eyes.

Ocular History: No previous visual examination; no history of infection or trauma about the eyes.

Health History: General health, excellent. Patient has had measles and chicken pox.

Family History: Her older brothers and sister both wear glasses.

PRELIMINARY FINDINGS:

External Examination

Position	On line
Cilia and Palpebrae	Straight and clear
Lid margins and caruncle	Clear
Conjunctiva and puncta	Clear
Sclera	Clear
Cornea	Clear
Anterior Chamber	Clear, with normal depth
Iris	Clear
Crystalline lens	Clear
Lacrimal Drainage	Good drainage
Tension	Normal

Pupillary Reactions:

Direct	Present
Consensual	Present
Near point	Present
Speed	Fast
Stay Contracted?	No

OPHTHALMOSCOPIC EXAMINATION:

Cornea	Clear
Anterior Chamber	Clear
Iris	Clear
Crystalline Lens	Clear
Vitreous	Clear

Fundus Coloration
Disc Margin?
Physiological cupping
Vessel Ratio

Medium brunette
Well demarcated and slight choroidal ring
None
3:2

OPTOMETRIC FINDINGS
See Table I

VISUAL SKILLS
See Table II

DIAGNOSIS:

The lowered entrance acuity and also the myopic picture of the static retinoscopy and subjective show the need for therapy in the form of minus lenses at far. The high #9 and high break of #10 indicate that progression into more minus could occur. The basis of the therapy was the attempt to halt a possible myopic progression, by the use of increased plus at near.

The typing of B2-6, adequate breaks of #10, #11, #16B, and #17B, the spread in plus, between #4 and #5, #7 and #14A, #7 and #14B all point to the acceptability of increased plus, over the subjective at near.

Far point stereopsis, far point visual discrimination and near point visual discrimination were the only perceptual skills failed. The patient either passed or improvement was noted on these skills when they were re-taken through the proposed lenses.

The number one progress report, which was taken six weeks later, presents an improved analytical picture. The #7 and #7A show less minus. The #10 break has decreased and the recovery increased nearer the normal expected. The #11 break is higher with a good recovery. Visual acuity through the subjective which is the same lens power as the patient's prescription has improved. The #14A gross is higher in plus with a lower exophoria indicating acceptability of plus at near. The #16B finding is higher and #17B has dropped, showing a more marked B2 picture. The #21 finding is higher in plus.

The perceptual skills that were formerly failed are the same or show improvement. Far point visual discrimination is the same as on the original examination, but near point discrimination shows marked improvement through the patient's near prescription. Near point binocularity, however, is failed, indicating that the near prescription may be too high in plus.

The cylinder shown in the subjective was not prescribed because of the patient's age, and because no cylinder was found in #4 or during the original examination.

The number two progress report, which was taken six months after the first progress report, presents a continued movement toward the ~~desired~~ expected in the prism finding (#10, #11, #16B, #17B). The #14A gross has dropped in plus, with an increase in the exophoria. The subjective and best visual acuity have increased in minus to a point very near to that found in the original analytical findings. The #21 drop in plus, the phoria taken through the habitual near prescription (#13A), the failed inhibitory phase of accommodative rock, and the lowered acuity on near point discrimination all indicate that the patient is "over-plussed" at near. The phoria taken through the binocular cross cylinder and the improvement on near point visual discrimination, through that lens power, indicate that it is a better near prescription. The drop in Snellen acuity through the patient's prescription indicate the need for increased minus at far.

PRESCRIBED TREATMENT

O. U. -1.25
Add O. U. +1.50

This was in the form of a Rederite bifocal for full time wear.

O. U. -1.75
Add O. U. +1.50

After the second progress report in the form of a bifocal, flat top, 22 mm. segment for full time wear.

COMMENT

It is believed that the therapy in this case should have been governed more by the dictates of the B2 type of problem, regardless of the fact that

the patient was myopic. The prescription of plus at near in minus cases should be made on the basis of the case typing and not on the hypothesis of halting the progress of myopia. There seems to be little evidence, in this case, that the gross exaggeration in plus over the calculated near lens was helpful in the disposition of the case.

If we speculate that the myopia arose from the near problem, the prescription of plus at near in minus cases should be based not on trying to halt myopia by the use of plus lenses, but to provide optimum near-point performance.

Since the near problem has been alleviated, it would seem that the situation has been arranged to minimize the chances of progression.

SUMMARY

Therapy in the form of an add at near, considerably above the amount of plus available in the near nets, was prescribed with a view to the halting of progression into more minus in a nine-year-old female. The prescription was unsuccessful. An alternate method of determining the near-point prescription in myopic cases is presented.

OPTOMETRIC FINDINGS*

	3/15/51	5/9/51	Nov. 51
2 Ophthalmometer: O.D.	-1.50 x 90		
O.S.	-.75 x 90		
**3 Lat ph thru hab Rx	1 1/2 Exo.	1/2 Exo.	1 1/2 Exo.
13A Lat ph at 16" thru hab Rx	6 Exo.	6 Exo.	10 Exo.
4 "Static" retinoscopy O.D.	-2.25	-2.25	-2.25
O.S.	-2.25	-2.50	-2.25
5 "Dynamic" retinoscopy O.D.	-1.00	-1.25	-.50
at 20" O.S.	-1.25	-1.25	-.75
6 "Dynamic" retinoscopy O.D.	-1.50	-1.50	
at 40" O.S.	-1.75	-1.50	
7 Subjective to 20/20 O.D.	-1.75	-1.25-50x105	-1.50-50x105
O.S.	-1.75	-1.25-50x105	-1.75-.25x90
7A Subjective to best O.D.	-2.25	-2.00-.50x105	-2.25-.50x105
visual acuity O.S.	-2.25	-2.00-.50x105	-2.50-.25x90
8 Lat ph thru #7	4 Exo.	1/2 Exo.	4 Exo.
9 B O to blur thru #7	16	X	14
10 B O break & recover thru #7	33/8	25/10	21/12
11 B I break & recover thru #7	8/6	13/8	9/3
12 Vert ph thru #7	Ortho.	Ortho.	Ortho.
12 Vert ductions thru #7	3/1 3/1	3/1 3/1	3/0 3/0
13B Lat ph at 16" thru #7	8 Eso.	10 Eso.	10 Eso.
14A Diss cross O.D.	+ .25	+ .50 with Cyl.	Plano.
cylinder at 16" O.S.	+ .25	+ .50 with Cyl.	Plano.
15A Lat ph thru 14A	10 Exo.	2 Exo.	6 Exo.
14B Binoc cross O.D.	-.25	-.50 with Cyl.	-.25
cylinder at 16" O.S.	-.25	-.50 with Cyl.	-.25
15B Lat ph thru #14B	2 Exo.	3 Eso.	5 Exo.
16A B O blur out 16" thru <u>Plano.</u>	16	X	X
16B B O break and recover thru <u>Plano.</u>	30/12	32/20	29/14
17A B I blur out thru <u>Plano.</u>	16	X	X
17B B I break & recover 16" thru <u>Plano.</u>	24/22	16/4	26/24
18 Vert ph 16" thru <u>Plano</u>	Ortho.	Ortho.	Ortho.
18 Vert ductions 16" thru <u>Plano</u>	3/0 3/0	3/0 3/0	3/0 3/0
19 Minus to blur 13" O.D.	6.50	6.25	7.25
O.S.	6.50	6.50	7.25
O.U.	6.00	5.25	6.75
20 Minus to blur out 16"	-3.25	-3.50	-3.75
20 Lat ph 16" thru <u>-3.00</u>	16 Eso.	Ortho thru -1.75	12 Eso. thru -2.50
21 Plus to blur out 16"	+1.25	+1.75	+.75
21 Lat ph 16" thru <u>Plano. (+ .25)</u>	14 Exo.	8 Exo. thru +1.50	8 Exo. thru Plano.

* The numbers shown are the numerical designations for the indicated tests as adopted by the Optometric Extension Program.

TABLE II
SUMMARY OF Visual Skills

Techniques or Skills	Dates Given											
	3/15/51			5/9/51			Nov. '51					
Rotations	P						P					
Pursuit Fixations	P						P					
Near Point of Binocularity	3½"						3"					
Donder's Amplitude O.D.	3½"						3"					
O.S.	3½"						3"					
O.U.	3½"						2½"					
Fixations: Near to Far	P						P					
Far to Near	P						P					
Wide Lateral	P						P					
Saccadic Fixations												
Vertical	P						P					
Horizontal	P						P					
Oblique		F					P					
Accommodative Rock		F		P				F				
Simultaneous Perception	P			P			P					
Far Point Binocularity	P			P			P					
Far Point Stereopsis	P			P			P					
Far Point Pericentral												
Suppression	P			P			P					
Far Point Central Suppression	P			P			P					
Hand and Eye Coordination	P			P			P					
Color Vision	P			P			P					
Far Point Lateral Phoria	P			P			P					
Far Point Visual Discrimination		F			F			F				

A double ruling indicates a progress report was taken at this point. See Table I.

TABLE II
SUMMARY OF Visual Skills

Techniques or Skills	Dates Given												
Far Point Vertical Phoria	P			P			P						
Near Point Vertical Phoria	P			P			P						
Near Point Binocularity	P				F		P						
Near Point Stereopsis	P			P			P						
Near Point Pericentral													
Suppression	P			P			P						
Near Point Central													
Suppression	P			P			P						
Near Point Visual Discrimination		F		P				F					

A double ruling indicates a progress report was taken at this point. See Table I.