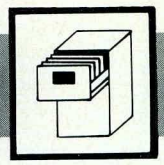

CASE REPORT

Application of Percival's Criterion in Correcting Insignificant Hyperopia in a Pre-Presbyope

K.M. Robertson*

Abstract

This is a case report of simple hyperopia with adequate amplitude of accommodation to compensate for the increased accommodative stress. Success of the small prescription was attributed to the improved binocular function based upon Percival's criterion for vision comfort.

Abrégé

Ce rapport de cas traite d'une condition d'hypermétropie simple avec une accommodation adéquate pour subvenir au demandes du point de lecture. Le succès de la faible correction s'expliquerait par une amélioration de la fonction binoculaire basée sur une application du Critère de Percival.

Patient: DR - male
age: 12 years 5 months
vocation: Grade VII
avocation: sports (hockey, skiing, baseball)

Case history: Last ocular assessment was 2 years previously and received glasses for school work. Has recently lost glasses. Finds that the blackboard blurs frequently without glasses but never blurs when reading. However with extended reading the eyes feel "tight and sore". Has been getting bitemporal headaches at school. The headaches also come when doing homework.

Unaided visual acuity:

at 6M	OD 20/15	at .40 cm	OD .37
	OS 20/15		OS .37
	OU 20/20		OU .37

Covertest:
at 6M (habitual) 2^{Δ} esophoria
at .4M (habitual) 2^{Δ} exophoria

Near point of convergence: to the nose

Sensory fusion: There was no evidence of suppression on vectographic card and slide. Stereoacuity was measured as 60" at 6M and 40" at 40 cms.

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External examination: All pupil reflexes (direct, consensual and accommodative) were responsive, equal and rapid. The palpebral conjunctiva was slightly ejected but there was no evidence of ocular discharge and/or conjunctivitis.

Ophthalmoscopy: Fundus examination revealed a normal youthful fundus with type I discs. The foveal reflex was very distinct with no evidence of pigmentary disturbance.

Static retinoscopy:
OD +1.00 20/20
OS +1.00 20/20

Subjective refraction: Balanced by red-green and dissociation
OD +0.75 20/15 OU 20/15
OS +0.75 20/15

Amplitude of accommodation: Measured by pushup technique
OD > 10.00 D.S.
OS > 10.00 D.S.

Motor fusion: by von Graefe at 6M (stimulus to accommodation = 0)
orthophoria; negative fusional vergence: x/6/4
positive fusional vergence: x/12/4

At .4M (stimulus to accommodation = 2.5 OD)

4^{Δ} exophoria; negative fusional vergence: 14/18/10
positive fusional vergence: 20/24/12

Accommodative facility: (time in seconds per cycle to clear vision in shifting from +2.00 to -2.00 monocularly, at 40 centimeters using 0.37M)

OD 4 secs/cycle
OS 4 secs/cycle

Colour vision: Testing on the F2 plate indicated normal trichromacy

Disposition:
a) Environmental - the patient was counselled on good reading habits; such as maintaining good reading distance and illumination. Without any correction the reading position should be held further out to reduce accommodative stress.

b) Ocular health - the patient was counselled that there was no apparent ocular pathology or systemic condition causing ocular signs.
c) Ametropia and binocular vision - with the ametropia corrected the patient meets all criteria (both Sheard's and Percival's) while viewing at 6 meters and .40 meters. The visual acuity measured binocularly at 6 meters equals the monocular visual acuity.
The AC/A (calculated) is determined as 3.8^{Δ} convergence per 1 diopter of accommodation. Percival's criterion is no longer met at 6M when the stimulus to accommodation is increased by .75 D. (It is to be noted that the unaided visual acuity is less binocularly).
The von Graefe measures would be altered by the following:
3.8^{Δ} x .75 D = 2.7^{Δ} or +2.5 and would be habitually 2.5^{Δ} esophoria at 6M

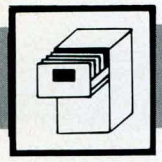
NFV: x/3.5/1.5
PFV: x/15.5/7.5

1.5 exophoria at .4M

NFV: 12.5/16.5/8.5
PFV: 21.5/25.5/13.5

Therefore by correcting the small amount of ametropia the binocular coordination at six meters was treated and at 40 centimeters the stimulus to accommodation was reduced to 2.5 diopters.

Effectiveness of recommended therapy: The patient was contacted 3 weeks after receiving the spectacles. His report indicated no blurriness when looking at the blackboard even after long periods of reading. There were no indications of eye fatigue when reading for extended periods of time. The patient was advised to have yearly ocular evaluations to ascertain that environmental visual demands, ocular health, ametropia and binocular vision has not varied.



CASE REPORT

Improvement of Visual Function of a Cerebral Palsied Child with Periodic Exotropia of the Divergence Excess Type

K.M. Robertson*

Abstract

Frequently, children who have a systemic disease which coincides with a very high incidence of visual anomalies are considered untreatable. This article describes the visual therapy given to a 10 year old child with cerebral palsy and the apparent success of the treatment.

Abrégé

Fréquemment, on considère que certains enfants souffrant d'une maladie générale et de plusieurs anomalies visuelles, sont intraitables. Ce travail décrit la réhabillitation visuelle d'un enfant de dix ans souffrant d'une paralysie cérébrale.

Patient, PT-male, age 10 was examined at the School of Optometry Clinic, University of Waterloo and consequently referred to the Binocular Vision Clinic. At age 4 the patient was diagnosed as having a "mild case" of cerebral palsy. He had attended classes for fine motor control and was in the regular classes at school. Evaluation by the school indicated that he could do all verbal and auditory skills above average but all reading and writing skills were below average. Case history revealed that previously no visual therapy was recommended.
Diagnosis was as follows:

Unaided V.A.

6M	O.D. 20/30	.4M	O.D. .37M
	O.S. 20/25		O.S. .37M
	O.U. 20/25		O.U. .37M

Refractive error:

O.D. -0.75-0.50x045 20/20
O.S. +0.50-0.75x165 20/20

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