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Ultimate vision

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Ultimate vision

Abstract

A holistic approach to visual care is given in a 26 day program to a group of subjects. Improvements are seen in visual acuity and visual stress, as well as vision fitness and behavioral problems related to vision.

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Master of Science in Vision Science

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Rocky Kaplan

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ULTIMATE VISION

by

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Advisor

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In Partial Fulfillment of the

Requirements for the Degree

Doctor of Optometry

Rocky Kaplan OD

Submitted for Approval

December 15, 1983

Abstract

A holistic approach to visual care is given in a 26 day program to a group of subjects. Improvements are seen in visual acuity and visual stress, as well as vision fitness and behavioral problems related to vision.

ULTIMATE VISION

The way people see has a lot to do with how they choose to see. Sight is the part of the visual system that collects the incoming light and projects the image to the visual cortex. Vision is how the person perceives the images the eye is giving it.

This study deals with vision and how the whole being is involved in the visual process. This holistic approach to vision will deal with the physical, emotional, and psychological aspects of the subjects.

Many different methods have been proposed for improving eyesight. The familiar ones are spectacles, contact lenses, and even surgical methods. These methods do not eliminate the problem they only serve to mask the problem.

The methods used in the Ultimate Vision approach to vision have been brought together as a result of the combining of many disciplines of science and human behavior. These include nutrition, exercise, relaxation and stress management, visual training, anatomy, and physiology.

Dr. Bates, an ophthalmologist, used methods to improve and correct eyesight without relying on spectacles. He found that various methods for relaxing the eyes and body, helped to improve the eyesight in all types of refractive error cases, including presbyopia. These methods include palming, sunning, and visualization techniques to help free the mind and body of the stress that was handicapping

the visual system. The Bates Method for better eyesight without glasses has proved to have some very valuable applications in reducing stress in the whole body, thereby reducing stress in the visual system and allowing the visual system to improve on its own.[1]

Many people in the country rely on some type of optical correction to see clearly. Nearsightedness, or myopia, seems to be the type of refraction error that can change dramatically over a few years and is of great concern to optometrists and patients alike. This progressive or functional myopia usually occurs while the child is in grade school, and finally stabilizes in the mid or late twenties.[2]

The control of this type of myopia has usually been done by the use of plus lenses for near work, thereby reducing the accommodative stress on the visual system at near.

It is the belief of many functional optometrists that this environmental, functional type of myopia can be controlled and even prevented.

Heredity determines the growth pattern of the eyes, but this can be significantly altered by environmental influences and factors such as nutrition and near point stress. Functional optometrists feel that vision is a learned human behavior, and that through greater knowledge of the visual system, and how it interacts with the total being, we can reduce our dependency on the crutches of corrective eye wear.[3]

In this study various methods have been attempted to improve the overall quality of the subjects, to reduce the stress in the body and visual system, and to actively exercise the eyes and visual system.

Subjects and Testing

Subjects for this research were chosen by random selection using a newspaper advertisement and word of mouth. Potential subjects were then screened by giving them an optometric examination to find the current level of refractive error, muscle balance, stereopsis, and amounts of presbyopia if any. (Only myopes and presbyopes were chosen for the study.) Potential subjects were then told of the purpose of the study, the time involved, and the commitments they needed to make. They were also asked for a $25.00 donation to help cover cost of materials used.

After subjects were selected, they were all brought together for a weekend workshop in which they were given explanations of the vision system, the difference between sight and vision, nutrition, aerobic exercises, visual testing, and home vision training. They were also given explanations and examples of self-relaxation techniques.

Subjects were then given forms to fill out for their daily food consumption, exercise schedules, visual testing, and commitment guidelines. They were also given the Ultra Vision Manual[4] which contains the outline for the 21 day program of home based vision training, and all pertinent information to the project. Subjects also filled out and rated their behaviors that concerned vision, and completed the Kaplan Questionnaire for Vision Fitness.

The subjects were divided up into teams with a designated team leader. The teams acted as support groups throughout the 21 day experience. The teams would try to meet once a week to report problems and any other insights or experiences to the team leader, who then called the chief investigator. In this way there was constant

communication between the subjects and researchers and any major problems or misunderstandings could be dealt with immediately. Also, any subject could call their team leader at any time if they had any immediate problems or concerns.

21-Day Experience

The 21-day program was divided into three one week periods. The first week was devoted to monocular vision. A patch was worn over one eye for up to four hours a day during their daily routine as long as they felt they were in a safe environment. They performed visual exercises every day, adding a new one each day. Besides doing the exercises, they were taught to also concentrate on their breathing and relaxation techniques.

In week two the subjects were introduced to two-eyed viewing. Patches were still worn, but exercises were done now with both eyes open. Also a bi-nasal patch was incorported for part of the week. New exercises were added to the first week's exercises. All the exercises done in this program are simple and require no special equipment. For a complete description of the visual exercises and hygiene write to Rocky Kaplan c/o Pacific University.

The third week was devoted entirely to two-eyed vision. More binocular exercises were added to the previous two weeks, one per day.

During this whole three week period, the subjects were keeping track of their food intake, aerobic exercises, Eye-Q chart, and daily commitments in their diaries.

At the end of the three weeks, the subjects came to another

weekend get together to discuss their experiences, fill out post-testing questionnaires concerning visual fitness and behaviors, and turn in all their nutrition and exercise diaries.

The subjects were then given a post clinical exam within the following two weeks.

Results

The purpose of this study was to look for any types of changes that took place in the subjects from pre to post-testing. For a control group, a random group of people was tested at the same time as the experimental group, and then again after the three week program for the experimental group. Table I shows the breakdown of the control and experimental groups in terms of age, education level, number of myopes, and number of presbyopes.

Table I
Subject Data

	Control	Experimental
n	21	62
age (mean)	37	34.7
min. age	25	14
max. age	64	60
education level (in%)		
H.S.		1.7
H.S.		11.7
H.S.		25
BA, BS		41.6
BS		6.7
MA, MS		6.7
MS		6.7
myopes (45) n	15	50
presbyopes (45) n	6	12

Table II shows the clinical data of the control and experimental groups. Stereopsis was done with the AO vectographic slide and polaroid glasses. Fixation disparity was also done with the AO vectographic slide and loose prisms at far and near.

The results show that for the experimental group, visual acuity at far, stereopsis at far, and range of prism diopters to fixation disparity at far and near all significantly changed for the better between pre and post-testing. All other optometric data did not change significantly for either group. The vision fitness score also changed very significantly for the experimental group. The subjects had been asked to keep track of how much of the time they were wearing their current Rx before and after the program. It was found that the percentage of wearing time dropped from 78.9 percent to 19.2 percent; a significant drop in their dependence on their Rx. All subjects had been told before the program started that they should wear their Rx for all life-threatening situations, i.e. driving a vehicle.

In Table III we have a breakdown of the myopic group and the presbyopic group. This shows that the presbyopes as a group did not show any singificant changes. They had the same tendencies for improvements as the group as a whole, but not at an experimentally significant level.

Table IV shows a percentage change from pre to post-testing from a behavioral questionnaire given to the subjects. They were rated on a scale of 1 to 10 with one being a behavior never noticed, and ten something they did constantly.

Table II
Data of Experimental Group and Control Group

Test	Control				Experimental			
	n	$\bar{X}b$	$\bar{X}a$	t	n	$\bar{X}b$	$\bar{X}a$	t
V.A. @ far unaided	17	20/75	20/66	.88	44	20/105	20/77	3.877*
Stereopsis thru habitual Rx	18	138"	126"	-.638	48	206"	156"	3.15*
Range of prism diopters to fixation disparity @ far	18	4.58	4.5	.09	45	5.2	7.48	-5.38*
Range of prism diopters to fixation disparity @ near	18	6.82	8.65	-1.55	45	7.58	9.02	-2.76*
Vision Fitness Score	20	7.55	8.85	-1.37	58	5.82	9.67	-7.17*
% wearing time of 20/20 Rx#					40	78.9%	19.2%	11.66*

$\bar{X}b$ = before

$\bar{X}a$ = after

* = Significant level of at least .05 using two-tailed test and 5 planned tests

\# = unplanned test

Table III
Experimental Group Data for Myopes and Presbyopes

Test	Myopes				Presbyopes			
	n	$\bar{X}b$	$\bar{X}a$	t	n	$\bar{X}b$	$\bar{X}a$	t
V.A. @ far unaided	36	20/110	20/77	3.12*	11	20/68	20/61	2.5
V.A. @ near unaided	36	20/26	20/27	.988	8	20/35	20/34	-.32
Stereopsis thru habitual Rx	40	194"	150"	2.51	8	240"	187.5"	-1.87
Range of prism diopters to fixation disparity @ far	39	5.1	7.5	-5.18*	6	6	7.7	-1.41
Range of prism diopters to fixation disparity @ near	37	7.82	9.12	2.44	8	6.5	8.56	-1.3
Vision Fitness Score	46	5.87	9.98	-7.95*	12	7.75	9.17	-2.05

$\bar{X}b$ = mean pre score

$\bar{X}a$ = mean post score

* = significant level of at least .05 using two-tailed test and 5 planned tests

Table IV
Behaviors

List of behaviors that changed significantly from pre to post testing. Each of the listed behaviors were given at least a 5 on the rating scale. See text for explanation of rating scale used.

Behavior	Pre	Post	% Change
1. Skip words or sentences	22	13	41
2. Reread lines or phrases	30	14	53
3. Read too slowly	22	13	41
4. Comprehension poorer as reading is continued or loses interest quickly	15	7	53
5. Headaches in forehead or temples	14	7	50
6. Frown, scowls or squints	20	14	30
7. Rest head on arm when writing	5	11	55
8. Write crookedly and/or poorly spaced	12	7	42

Conclusions

This program tried to show that people can change their vision for the better without going through a long drawn out process of visual training that could last many months. It also wanted to show people that they could reduce their dependency on eye correction and learn to use their vision more effectively and efficiently. The optometric data did not show any significant changes in refractive error, but it did show an increase in the range of prism diopters to fixation disparity, an indication that they had reduced the stress in their visual system. Behaviors related to poor visual skills improved with the post-testing, indicating that the visual system (eye movements, focusing, binocularity, and visual hygiene) had improved significantly.

The nutrition and aerobic part of the program can not be scrutinized statistically, but a high compliance rate and an increase in the subject's awareness of good nutrition and proper aerobic types of exercise was noted. Most of the subjects also reported that the breathing and relaxation techniques were very beneficial to them.

Summary and Recommendations

A program such as this, using a holistic approach, can be done with any number of people in a relatively short amount of time. The beneficial aspects of the nutrition, aerobics, and visual exercises and hygiene, should carry over into the normal routine of the patients.

More study needs to be done in the areas of nutrition and vision, and aerobic exercise and vision to give a more complete picture of the

needs of the visual system for these components of the total holistic approach to vision care.

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3. Benkle, David J. and Ellingson, Larry D. A Holistic Approach to Myopia Control and Prevention. Pacific University College of Optometry Thesis.

4. Kaplan, Rocky. Ultimate Vision, See for Yourself in 26 Days. Portland Optometric Clinic, Pacific University College of Optometry, 1982.