



THE EFFECT OF EYE EXERCISES IN *PRATHAMAPATALAGATA TIMIRA* W.S.R. TO SIMPLE MYOPIA

Harimohan Tanwar^{1*}, Gunjan Sharma², Renu Rao³, Priyanka Rani⁴

¹M.S. Scholar, Dept. of Shalakya Tantra, UAU, Rishikul Campus, Haridwar, Uttarakhand.

²Professor & HOD, Dept. of Shalakya Tantra, UAU, Rishikul Campus, Haridwar, Uttarakhand.

³Associate Professor, Dept. of Shalakya Tantra, UAU, Rishikul Campus, Haridwar, Uttarakhand.

⁴Assistant Professor, Dept. of Shalakya Tantra, UAU, Rishikul Campus, Haridwar, Uttarakhand.

*Corresponding Author: Dr. Harimohan Tanwar

M.S. Scholar, Dept. of Shalakya Tantra, UAU, Rishikul Campus, Haridwar, Uttarakhand.

Article Received on 03/09/2020

Article Revised on 24/09/2020

Article Accepted on 14/10/2020

ABSTRACT

Eyes are one of the most important organs in the human body & vision is one of the most wonderful gifts. Still, however, many people ignore the value of eye care and do not pay enough attention to preserving healthy eyes and rejuvenating them. There are many factors in the present era that can interrupt the normal health of the brain, such as ongoing computer work, watching television for long time, extended use of cell phones specially at night, reading in poor light source, unhealthy dietary patterns, etc. To keep our eyes healthy & rejuvenate eyesight practicing EYE EXERCISES is effective therapy. The origin of natural vision improvement by eye exercises dates back more than 90 years to William H. Bates, MD. He was an Ophthalmologist who wrote "Perfect Sight without Glasses". In India, it has been started in Arbindoashrama in Pudduchery & then after it has been spread to all over the country. Eye Exercises work on the principles of removal of harmful chemicals, eye stimulation & muscle activation, eye relaxing & mind relaxing exercises. Eye exercises help to strengthen the extra-ocular muscles, make the mind look at the objects and boost the central fixation. There are so many Eye Exercises like Sunning, Swinging, Eye wash, Palming, Distance chart reading, candle light exercise, steaming, Candle flame, Ball exercise, Cold pad etc. Which can be exercised daily to maintain safe eyes & vision. The aim of this article is to be very aware of the benefits of Eye Exercises to the scientific community and to encourage research scholars to study on this particular subject.

KEYWORDS: *eye care **eye exercises ***eyesight rejuvenation.

INTRODUCTION

The eye is not only the most beautiful but also the most important sensory organ of human body. In this important treatise one complete chapter has been dedicated to disorders of vision i.e. *Drishtigataroga*, wherein 12 visual disorders have been elaborated.^[1] Later *Acharya Vagbhata* described 27 *Drishtirogas*.^[2] Among these disorders of vision one is *Timira* which is said to be *Paramdarunvyadhi* (difficult to cure) because *Timira* ultimately lands into blindness.^[3]

Based on the involvement of the *Patala*, *Timira* is classified into 4 types; *Prathamapatalagata Timira*, *Dwitiyapatalagata Timira*, *Tritiyapatalagata Timira* and *Lingnasha*. When the Vitiated *Doshas* move in upward direction through *Sira* and reach the first *Patala* of the eye, leading to stage of *Prathamapatalagata Timira*, which is characterised by "*Avyakta Darshan*" i.e blurring of vision.^[4] (Sushruta Utt. 7/6-7)

Myopia (nearsightedness) is a refractive error in which parallel rays of light from an object at infinity enters the eye and is focused in front of retina, accommodation being at rest.^[5] Myopia is a major public health problem pertaining to eye that entails substantial societal, personal, educational, and economical impacts.^[6] Estimate of number of people suffering from refractive error in the world are in the range of 8 million to 2.5 billion.^[7] According to WHO, 4.3% of the vision impairment is due to refractive errors.^[8] In India prevalence of myopia is reported to be 6.9%. Stress and nutritive factors also play a vital role in manifestation of myopia.^[9]

Prevailing modality of treatment should be supplemented by some ocular strengthening therapy and eye rejuvenation non pharmacological modality by which ocular health can be maintained. In search of this modality lead the investigators to ocular exercise therapy which is under evaluated by modern science but are

described in our *Ayurvedic* texts and *Upnishads*, so *Ayurveda* plays a vital role in this regard. Meanwhile eye exercises (Sunning, Palming, *Trataka Kriya*, Clock Exercise, Ball Exercise, Eye wash, Foot Massage) are practiced throughout India and believed to increase the eyesight. By keeping this concept in mind, the present study was conducted to evaluate the role of Eye exercises in refractive error (like myopia).

Aims and Objectives

- To study conceptual resemblance of *Pratham Patalagata Timira* and simple myopia
- To evaluate the effect of ocular exercises on *Pratham Patalagata Timira* w.s.r to simple myopia.

MATERIAL AND METHODS

The present clinical trial was designed in a group, on which randomized study was taken over the 20 patients, suffering from *Prathamapatalgata Timira* (Simple Myopia). Patients attending the OPD and IPD of Department of Shalakyia Tantra, Rishikul Campus, Haridwar, were registered irrespective of their sex, religion, occupation, education etc. Informed and written consent were taken from all the patients.

Criteria for Assessment

Subjective Parameters

Cured:	-1D reduction in spherical dioptric power or complete remission.
Marked improvement:	-0.75D reduction in spherical dioptric power.
Moderate improvement:	-0.50D reduction in spherical dioptric power.
Mild improvement:	-0.25D reduction in spherical dioptric power.
Unchanged:	No reduction in spherical dioptric power.

Objective parameter

Cured:	>90 % relief in signs and symptoms and no recurrence during follow up study
Marked improvement:	76 % to 90 % improvement in signs and symptoms
Moderate improvement:	51 % to 75 % improvement in signs and symptoms.
Mild improvement:	26 - 50 % improvement in signs and symptoms.
Unchanged:	≤25 % reduction in signs and symptoms.

Duration of study

Ocular exercises for 45 days

1. Sunning – 5 mins
2. Palming – 5 mins
3. *Trataka Kriya* – upto 5 mins
4. Clock Exercise – 5 mins
5. Ball Exercise – 5 mins
6. Eye wash with *Triphala kashaya*- 5 mins
7. Foot Massage – 5 mins

Follow up study

Follow-up study was conducted for 1 month and 2-month interval after completion of treatment.

Statistical test: Based on observations, the data obtained were statistically analyzed in terms of mean, standard deviation, standard error, and unpaired 't' test was considered at the level of $P < 0.001$ as highly significant, $P < 0.01$ as significant, and $P < 0.10$ as insignificant to assess the results.

Inclusion criteria

- Patient having classical signs & symptoms of *Prathamapatalgata Timira* and simple myopia.
- Patient aged between 13 to 30 years.
- Patients having simple myopia (-0.5D to -2.5D).

Exclusion criteria

- Dwitiya, Tiritiya* and *Chaturtha Patalgata Timira*
- Congenital, Pathological & Functional Myopia.
- Hypermetropia
- Astigmatism
- Patient with infective anterior segment disease and any other ocular pathology like cataract, glaucoma, retinal pathology, Squint, Nystagmus.
- Patient with any systemic disease like HTN, DM, Hyperlipidemia.
- Functional myopia and hypermetropia.

Criteria for Withdrawal

- Personal Matters
- Inter current Illness
- Other difficulties
- Aggravation of symptoms

OBSERVATIONS AND RESULTS

Out of 20 patients studied in this work, maximum patients (50.0%) were found in the age group of 21–30 years. Major numbers of patients were Hindus (80.0%). Maximum patients belonged to *Pitta- Kapha Prakruti* (55.0%), Maximum patients (90%) Were found in sound sleep, Maximum patients 75% were found Female, Maximum patients (100%) were found unmarried, Maximum patients 55% were Graduated, majority of the patients belonged to middle class i.e. 60%, Maximum patients 80.0% were found urban area and It was observed that the 60% patients were consuming vegetarian diet.

Effect of Therapy

Effect of Therapy Subjective assessment

Blurring of vision- The median score of blurring of vision in right eyes was 3.00 which after treatment got

reduced to 1.00 with a relief of 79.2% (p-value <0.001), which is statistically highly significant.

Before treatment median score of blurring of vision in left eyes was 3.00 which after treatment reduced to 0.50 with a relief of 81.5% (p-value>0.001) which is statistically highly significant.

Eye strain- The median score of eye strain in right eyes was 2.00 before treatment, it was reduced to 0.00 in both eyes after treatment with a relief of 82.3% (p value-0.001), which is highly statistically significant.

Before treatment median score in left eyes was 2.00 which after treatment reduced to 0.00 with a relief of 82.3% (p-value< 0.001) which is statistically highly significant.

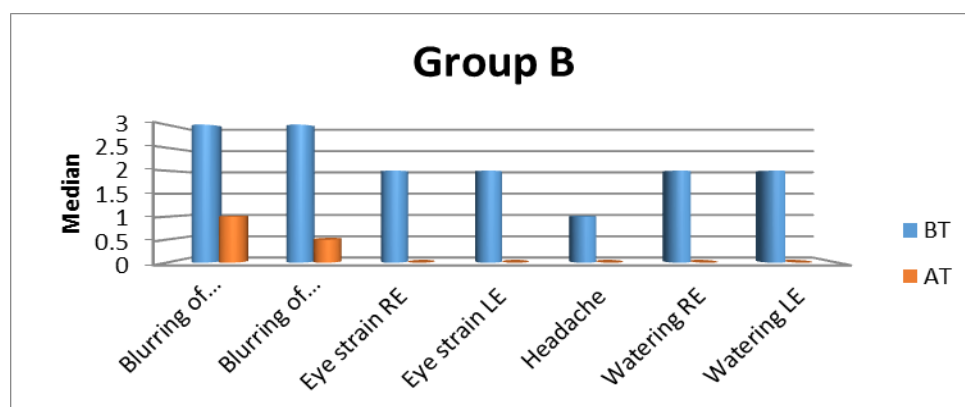
Headache- Before treatment the median score for headache was 1.00 which after treatment gets reduced to 0.00 with relief of 100% (p-value 0.002) which is statistically highly significant.

Watering- Before treatment the median score for watering in right eyes was 1.00, which after treatment get reduced to 0.00, with relief of 100% (p value-0.008), which is statistically highly significant.

Before treatment median score in left eyes was 2.00 which after treatment reduced to 0.00 with a relief of 100% (p-value< 0.016) which is statistically significant.

Visual acuity- Before treatment mean score of visual acuity in right eye was 0.547, which after treatment get reduced to 0.17 with relief of 67.3% (p-value 0.001) and T-Value 8.02, which is statistically highly significant.

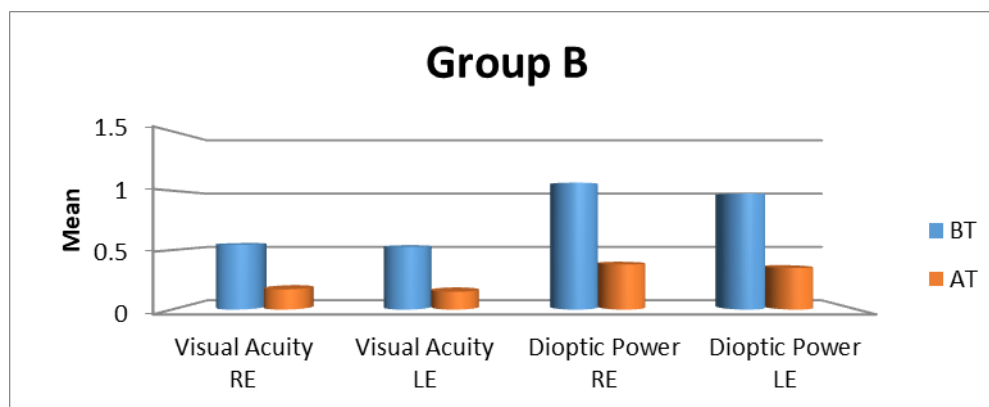
Before treatment mean score of visual acuity in left eye was 0.527, which after treatment got reduced to 0.15 with a relief of 70.4%(p-value 0.001) and T-Value 11.3, which statistically highly significant.



Effect of Therapy Objective assessment

Dioptric power- Before treatment the mean score of dioptric power in right eye was 1.063 which got reduced to 0.38 after treatment with relief of 63.5 % (p-value <0.001) and T-Value 13.9, which statistically highly significant.

Before treatment, in left eye the mean score was 0.975 which after treatment gets reduced to 0.35 with relief of 64.1% (p-value<0.001) and T-Value 13.5, which is statistically highly significant.



Overall effect on Subjective parameters

Out of 40 eyes 18 (45%) were cured; Marked improvement was in 10 (25%) eyes and Moderate improvement in 12 (30%) eyes.

Overall effect on Objective parameters

Out of 40 eyes 4 (10%) were cured; Marked improvement was found in 15 (37.5%) eyes, Moderate improvement in 20 (50%) eyes and mild improvement in 1 (2.5%) eye.

Overall effect of therapy

Out of 40 eyes 15 (37.5%) were cured; Marked improvement was found in 6 (15%) eyes and Moderate improvement in 19 (47.5%) eyes.

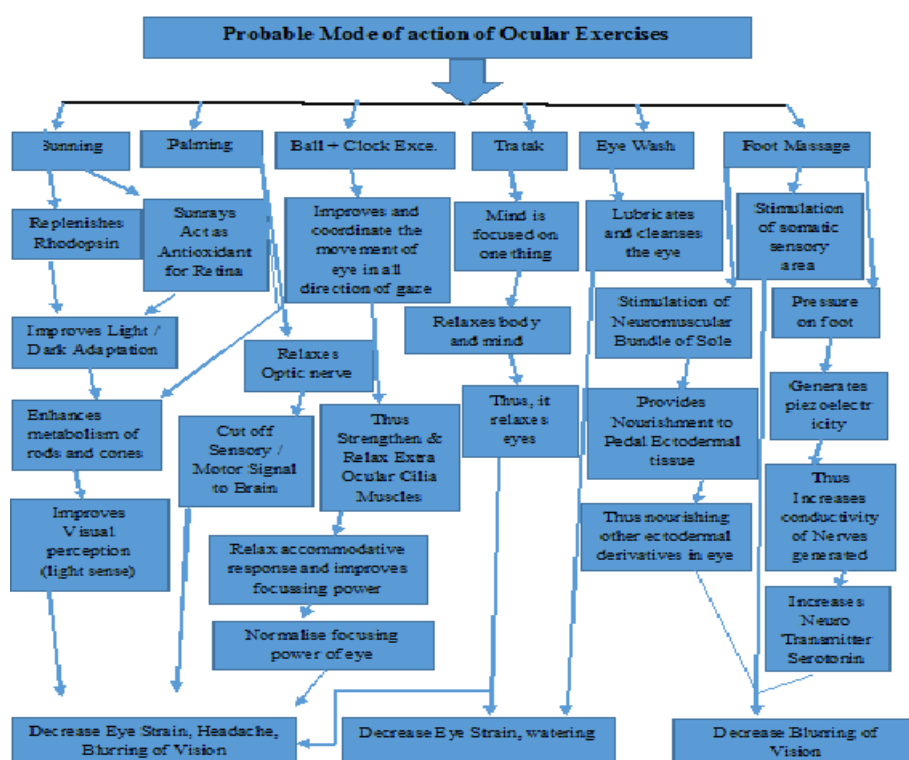
DISCUSSION

A search of ocular exercise therapy which is under evaluated by modern science but are discretely described in our *Ayurvedic* texts and *Upnishads*. Dr. William Horatio bates has also described the eye exercise therapy in modern science. Now a therapy is also practiced in full pledged manner in many reputed institutes of India like School for perfect eyesight at Pondicherry and Moraji Desai institute of Yogic Science at New Delhi. Vision is the function of both body and mind, developmentally the eye is an extension of brain and it's the mind that sees. Relaxation of mind is an essential prerequisite for the cure of the diseases. As a result of this mind body connection the eyes only get relaxed fully when the mind is relaxed and ocular exercises are an approach for relaxation of mind and eyes. In today's era, technology advancement leads to overuse of eyes, our *Acharyas* have also explained it as *Atiyoga* and *Mithyayoga* of

chakshuindriya. As a result of this eyes get fatigued. In this era of changed life style and increased pace, it is the primary duty of *Ayurvedic* community to educate the society regarding the healthy use of this sense organ. A regular sequential manner of ocular exercises schedule is selected in this regard for the prompt relaxation of eye and curation of refractive problems. This schedule of optimum exercise provides nourishment to *Dhatus* and *Patalas* thus improves the derangement of *Dhatus* and efficacy of sense organ in their perception. If the vitiation is moderate to severe this can very well act as suitable supportive therapy.

Mode of action of eye exercises

Eye exercises have a great role to play in asthenopic features. For better understanding, asthenopic features can be divided into extra ocular asthenopia and intraocular asthenopia. Extra ocular asthenopia is due to following factors like forcing the medial rectus muscle during convergence, lid squeezing to get stenopic effect, and strain causes fatigue, which in turn leads to brow headache, ocular pain, reflex lacrimation, and referred ophthalmoplegia. In an effort of clear vision, the blinking phenomenon also reduces, leading to non-replacement of tear film, which leads to blurring of vision. The fatigue of lid muscles also causes reflex irritation of conjunctiva, leading to burning sensation and thereby patient develops the habit of rubbing the eyes frequently to relieve the lid fatigue and irritation, which adds into the conjunctival hyperemia/chronic conjunctivitis. Whereas in case of intraocular asthenopia, ciliary spasm take place, which in turn leads to fatigue, ocular pain, and reflex features of lacrimation like burning sensation and watering.



CONCLUSION

In Snellen's chart reading one-line improvement was noted. There was moderate improvement in clarity of vision, contrast sensitivity, and fineness of objects. Though the degree of this improvement was Highly Significant for subjective parameters like blurring of vision, eye strain and also significant results were found for other subjective parameters like headache and watering and Highly Significant results were found for objective parameters like visual acuity and Dioptic power. It is an encouraging finding that a non-pharmacological, low cost, relaxation technique can improve the quality of vision, by which indirectly checks the progression of the disease condition.

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