International Journal of Applied Ayurved Research ISSN: 2347- 6362

EFFICACY OF TRATAKA IN IMPROVEMENT OF VISION IN MYOPIC AND HYPERMETROPIC CHILDREN

[1]Badwaik Premkumar Panjabrao,
[1]Assistant Professor, Department of Swasthavritta Mahatma Gandhi Ayurved College, Hospital & Research Centre,Salod(H), Wardha

ABSTRACT :

Numbers of children are suffering from myopia and hypermetropia due to excess use of computers, T.V.sets, mobiles etc. so it is the need of the hour to protect and save the eyes from these types of refractive errors. *Trataka* is one of *Shatkriya* which is very useful in eye disorders. It is good for vision. To study the efficacy of *Trataka* two groups i.e., myopic and hypermetropic between the ages of 13 to 16 yrs are selected for this study. After completion of 3 months study it has been observed that in myopic group it was observed that Diminished Ophthalmic Vision is reduced to 90%. Headache is reduced by 66.67%, lacrimation of eyes is reduced to 84.62%, ocular pain is decreased up to 85.71% & eye fatigue is reduced by 65.22%. In hypermetropic group of children it was observed that Diminished Ophthalmic Vision is reduced to 48.78%, headache is reduced to 69.56%, lacrimation of eyes is cured up to 56.25%, ocular pain is reduced to 61.90% and eye fatigue is reduced to 63.15%. So *Trataka* plays an important role in Myopia and Hypermetropia in children. It can be recommended to minimize the refractive error.

Key words: -*Trataka*, *Shatkriya*, Myopia, Hypermetropia

INTRODUCTION: Due to various electronic instruments like TV, computers, mobile etc., eyes are affected.Estimates of the number of people worldwide with refractive error range from 8 million to 2.3 billion. [1] But this figure seems to be subjective; because till today population-based study had not been carried out. Among this, majority of refractive errors are uncorrected. In 2006, refractive error program had been implemented in India. In 1990, papers published from India highlighted the fact that uncorrected refractive error was a significant cause of blindness and the major cause of impaired vision The fact became initiation for World Health Organization (WHO) to think about Vision 2020 global program – "The right to sight" – Refractive error can no longer be ignored as a target for urgent action.[2] Hence the main motto of Vision 2020 (current global initiative program by WHO) mandate to correct refractive errors with little infrastructures. Throughout the global survey in developing as well as developed countries myopic group being the main culprit in refractive errors.

We observed that people have sedentary life style and doing more work on computers. Due to more sitting hours on computers the eyes become dry and there are symptoms like headache, ocular pain, lacrimation and fatigue. There are six procedures which are very useful to clean and store the health in naturopathy and yoga known as *Shatkarma*. [3]. Children have somewhat addiction of T.V., mobiles, laptops, computers in this generation. They are the future of our nation. So we have chosen this topic for the improvement of vision in community having spectacles especially on children having age group in between 13 to 18 years. This will give the benefits to know the procedure to the

students who are participating in this survey based study as well as to the community also. *Trataka* [4] is one of them which is very useful in eye disorders. It is good for vision. If done regularly, it can prevent use of spectacles in day to day life. *Trataka Yoga Kriya* [4] includes *Bahiranga Trataka*.

According to Hathayogapradipika - [5]

Nirikshennishchaldrusha
Sukshmalakshyam Samahita:।
Ashrusampatparyantmacharyaistratakam Smrutam॥

- Hathayogapradipika Chapter2 Sutra-31

To look at the minute object without blinking the eyes till the tears oozes out with concentrated mind is known as *Trataka.*

Tratakphalam [6]

Evambhyasyogen Shambhavi Jayate Dhruvam ।
Netraroga Vinashyanti Divyadrushti Prajayate॥

-Shri Gherand Samhita (Yogashastram) Chapter 1Sutra – 55

Due to *Trataka Shambhavi Mudra* is enlightened, all diseases of eyes are cured and Divya drushti can be obtained.

AIMS & OBJECTIVES:

•To establish the remedy to improve the vision and to motivate the people to do the costless therapy like *Trataka.*

•To evaluate all types of refractive error before *Trataka.*

•To evaluate the difference between the refractive error before Trataka and after *Trataka* in myopic and hypermetropic children.

METHODOLOGY:

Study Duration – 3months

Study Design – Prospective and Analytical

Sample size and grouping

A random sample of 20 each in 2 groups of Myopic and Hypermetropic children has chosen for *Trataka.*

Materials:

1] Century paper with marker pen.
2] 40 volunteers irrespective of sex.
3] Equipments like Snellen chart trial lenses and trial frames for Investigation.
4] Stopwatch to measure the time.

Inclusion criteria:

1. Volunteers aged between 13 to 16 years of both the sexes.
2. Having refractive error for myopia and hypermetropia.
3. Headache, Lacrimation of eye, ocular pain, and fatigue.

Exclusion criteria:

Patients having any lenticular or corneal opacity and any other known ocular pathology.

CLINICAL STUDY:

Method of collection of data: On the first day, every volunteer was examined for refraction and the record was maintained. Trataka kriya was explained to them by the faculty .One 5 mm dot was drawn on century paper. The paper was pasted at 1& ½ feet on the wall in a room where *Trataka* was performed for 20 minutes. After every 15 days, follow up was taken up to 3 months. (6 follow ups) After every 15 days follow up of refraction was done.

Assessment of Overall Effect of Therapy:

Subjective assessment:

•Cured: Total 100% relief in signs and symptoms and no recurrence during follow up study was considered as cured.

•Marked improvement: More than 75% improvement in signs and symptoms will be recorded as marked improvement.

•Moderate improvement: Around 51-75% improvement in signs and symptoms will be considered as moderate improvement.

•Mild improvement: Around 26-50% improvement in signs and symptoms will be considered as mild improvement.
•Unchanged: Up to 25% reduction in signs and symptoms will be noted as unchanged.

Objective assessment:

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

Clinical Assessment (Subjective criteria for Myopia):

1. Diminished Ophthalmic vision (DOV)

Regular blurring disturbing day to day work -3
Regular blurring without disturbing routine work -2
Occasional blurring of images-1
No feeling of burring vision- 0

2. Headache

Regular Headache – 3
Irregular attacks of frequent headache - 2
Very occasional Headache - 1
No Headache - 0

3. Lacrimation of eyes

Regular lacrimation -2
Occasional lacrimation-1
No lacrimation at all -0

4. Ocular pain

Regular ocular pain -2
Occasional ocular pain -1
No ocular pain at all -0

5. Eye Fatigue

Before 2 hrs of work - 3
After 2 to 4 hrs of work - 2
After 4 to 6 hrs of work - 1
After more than 6 hrs of work - 0

Subjective criteria for Hypermetropia:

1. Diminished Ophthalmic vision (DOV)

0.75 Dioptre to 1.00 Dioptre vision -3
0.50 Dioptre to 0.75 Dioptre vision -2
0.25 Dioptre to 0.50 Dioptre vision -1
No diminished vision - 0

2. Headache

Headache on continuous reading for 1hr – 3
Headache on intermittent reading for ½ hr - 2
Headache on reading for 15 minutes - 1
No Headache - 0

3. Lacrimation of eyes

Continuous lacrimation -3
Intermittent lacrimation -2
On & off lacrimation -1
No lacrimation at all -0

4. Ocular pain

Frequent pain in ocular region-3
Intermittent pain -2
On & off ocular pain -1
No ocular pain at all -0

5. Eye Fatigue

Continuous eye fatigue - 3
Intermittent eye fatigue - 2
Eye fatigue for short duration - 1
No Eye fatigue at all -0

PARAMETERS: Visual Acuity Test to calculate Refractive error – This is done with Snellen chart. The participants are asked to read the letters on a chart from a distance of 20 ft. Then refractive error is calculated before and after *Trataka*.

Evaluation and Assessment:

•The data was collected from all students who are participants.
•Diminished ophthalmic vision, headache, lacrimation of eyes, ocular pain and eye fatigue and objective refractive error was evaluated with their results and they were assessed in %.
Investigations – Refraction

Refractive error of Myopic and Hypermetropic children of both the groups is evaluated before and after the study.

OBSERVATION & RESULTS:

Myopic group

Symptom	BT	AT	Mean diff.	% change	SD	SEM	T	p value
Diminished Ophthalmic Vision	1.000	0.1000	0.900	90	0.447	0.1000	9.000	<0.001
Headache	1.500	0.500	1.000	66.67	0.649	0.145	6.892	<0.001
Lacrimation of Eyes	0.650	0.1000	0.550	84.62	0.510	0.114	4.819	<0.001
Ocular Pain	0.350	0.0500	0.300	85.71	0.470	0.105	2.854	<0.010
Eye Fatigue	1.150	0.400	0.750	65.22	0.639	0.143	5.225	<0.001
Lt. Eye	-0.563	-0.313	-0.250	44.40 %	0.162	0.0363	-6.892	<0.001
Rt. Eye	-0.463	-0.263	-0.200	43.19 %	0.154	0.0344	-5.812	<0.001

In myopic group it was observed that diminished ophthalmic vision is reduced to 90%. Headache is reduced by 66.67%, lacrimation of eyes is reduced to 84.62%, ocular pain is decreased up to 85.71% & eye fatigue is reduced by 65.22%. Refractive error is reduced to 44.40% in left eyes whereas 43.19 % in right eyes.

Hypermetropic group:

Symptom	BT	AT	Mean diff.	% change	SD	SEM	T	p value
Diminished Ophthalmic Vision	2.050	1.050	1.000	48.78	0.562	0.126	7.958	<0.001
Headache	1.150	0.350	0.800	69.56	0.696	0.156	5.141	<0.001
Lacrimation of Eyes	1.600	0.700	0.900	56.25	0.447	0.1000	9.000	<0.001
Ocular Pain	1.050	0.400	0.650	61.90	0.587	0.131	4.951	<0.001
Eye Fatigue	0.950	0.350	0.600	63.15	0.503	0.112	5.339	<0.001
Lt. Eye	0.550	0.388	0.163	29.63 %	0.168	0.0375	4.333	<0.001
Rt. Eye	0.500	0.350	0.150	30.00 %	0.150	0.0334	4.485	<0.001

In hypermetropic group of children it was observed that diminished ophthalmic vision is reduced to 48.78%, headache is reduced to 69.56%, lacrimation of eyes is cured up to 56.25%, ocular pain is reduced to 61.90% and eye fatigue is reduced to 63.15%. Refractive error is reduced to 29.63% in left eyes whereas 30 % in right eyes.

OVERALL EFFECT OF THERAPY:

Myopia (Subjective Assessment):

Sr. No	Symptom	Cured	Marked	Moderate	Mild	Unchanged	No symptom
1.	Diminished Ophthalmic Vision	16 (80%)	-	-	1 (5%)	1 (5%)	2 (10%)
2.	Headache	6 (30 %)	-	-	10 (50 %)	-	4 (20 %)
3.	Lacrimation of Eyes	9 (45 %)	-	-	2 (10 %)	-	9 (45 %)
4.	Ocular Pain	5 (25%)	-	-	1 (5 %)	-	14 (70%)
5.	Eye Fatigue	5 (25%)	-	-	8 (40%)	-	7 (35%)

Hypermetropia (Subjective Assessment):

Sr. No	Symptom	Cured	Marked	Moderate	Mild	Unchanged	No symptom
1.	Diminished Ophthalmic Vision	2 (10 %)	-	2 (10%)	13 (65 %)	3 (15 %)	-
2.	Headache	6 (30 %)	-	1 (5 %)	6 (30 %)	-	7 (35%)
3.	Lacrimation of Eyes	5 (25%)	-	-	12 (60 %)	1 (5%)	2 (10 %)
4.	Ocular Pain	5 (25%)	-	-	7 (35 %)	1 (5%)	7 (35%)
5.	Eye Fatigue	5 (25%)	-	-	7 (35 %)	-	8 (40%)

DISCUSSION:

The effects of Trataka in symptoms like diminished ophthalmic vision, lacrimation of eyes, ocular pain are significant in myopia whereas headache, ocular pain and eye fatigue in hypermetropia. Trataka is useful in improving the vision as well as concentration of the students. Mode of action of eye exercises [7] 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 the 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 cause reflex irritation of conjunctiva, leading to burning sensation and thereby patient develops the habit of rubbing the eyes frequently to relive 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. Where as in *Trataka Yoga Kriya*, imagination power increases, functionally efficiency of extra ocular and intraocular increases by forcing them to work and enhances the metabolism of rods and cones through the mechanism of dark and light adaptation. The sense organ, which is misused to the maximum extent, is eye, that is, *Mithya or Atiyoga* of *Chaksurendriya*. 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 schedule in this regard for the prompt relaxation of eye is not only beneficial to such refractive problems but also can prevent many degenerative conditions. A schedule of optimum exercise improves Rasa, RaktaSamvahana as well as improves the efficacy of sense organ in their perception. A mild derangement of these Dhatus can completely be cured with these exercises. If the vitiation is moderate to severe, this can very well act as suitable supportive therapy. Actually the agenda behind this particular study was to popularize this simple technique, which can contribute to mankind in prevention of many eye diseases and provide relief to too many visual problems/asthenopic symptoms.

CONCLUSION:

It is an encouraging finding that a non-pharmacological, low cost, relaxation technique can improve the quality of vision, by which it indirectly checks the progression of the disease condition. The study showed that *Trataka* is good remedy to improve vision as well as it is costless therapy. If the procedure is performed at least for three months it can certainly help to minimize the refractive error irrespective of sex. It is also helpful to cure rest of the symptoms more or less in Myopia and hypermetropia.

Recommendation: - It is recommended that *Trataka* is a costless therapy to minimize the refractive error and the regular practice of it in adolescent age can prevent myopia and hypermetropia in future life.

REFERENCES:

1. Holden BA. Uncorrected refractive error: The major and most easily avoidable cause of vision loss. Community Eye Health. 2007; 20:37–9. [PMC free article] [PubMed]

2. Pizzarello L, Abiose A, Ffytche T, Duerksen R, Thulasiraj R, Taylor H, et al. VISION 2020: The Right to Sight: A global initiative to eliminate avoidable blindness. Arch Ophthalmol. 2004; 122:615–20. [PubMed]

3.Dr.Mangalagowri V.Rao,Reprint Ed.2011, A text book of Svasthavritta, Choukhamba Orientalia, Varanasi, Chapter 4-Shatkarma, pg. 418
4. Pancham Sinha. 1st Ed. New Delhi: MunshiramManoharlal Publishers Pvt. Ltd; 2007. Hatha Yoga Pradipika; p. 18. Chapter-2/32.
5. Pt .Hariprasad Tripathi, 1st Ed.2006, Choukhamba Krishnadas Academy, Varanasi. Hatha Yoga Pradipika with 'Hari' Hindi Commentary; pg. 46. Chapter-2/31.
6. Dr. Raghvendra Sharma Raghav 2009, Choukhamba Sanskrit Pratishthan, Delhi. Shri Gherand Samhita(Yogashastram), pg.15. Chapter-1/55.
7. A clinical study to evaluate the efficacy of Trataka Yoga kriya & eye exercises (non –pharmacological methods)in the management of Timira (Ammetropia & presbyopia) – G.Gopinathan et al [AYU],2012 Vol. 3, Issue- 4,pg.543-546

Corresponding Author: Dr. Badwaik Premkumar Panjabrao, Assistant Professor, Department of Swasthavritta Mahatma Gandhi Ayurved College, Hospital & Research Centre,Salod(H), Wardha
Email Id – badwaik.prem@gmail.com,

Source of support: Ni
Conflict of interest:None Declared