

TRATAKA YOGA KRIYA IN PREVENTION OF REFRACTIVE ERRORS: ANATOMICAL ASPECT

Dr. Manisha K. Daware*¹ and Dr. Sumitra Mane-Deshmukh²

¹Professor, Department of Rachana Sharir, Govt. Ayurvedic College, Osmanabad, 413501, Maharashtra, India.

²PG Scholar, Department of Rachana Sharir, Govt. Ayurvedic College, Osmanabad, 413501, Maharashtra, India.

Article Received on
10 Dec. 2019,

Revised on 29 Dec. 2019,
Accepted on 20 Jan. 2020

DOI: 10.20959/wjpr20202-16718

*Corresponding Author

Dr. Manisha K. Daware

Professor, Department of
Rachana Sharir, Govt.
Ayurvedic College,
Osmanabad, 413501,
Maharashtra, India.

ABSTRACT

The eyeball is the organ of sight.^[1] About 75% of afferents reach the brain through the eyes. Each and every component of three coats of eyeball is assisting the retina to focus the light properly.^[1] when eyes cannot focus images clearly on the retina it will cause the Refractive Error. These types of eye conditions usually develop in childhood but they can affect people of all ages. Because of today's life style, more use of computers, TV, mobile etc. Eyes have to bear a lot of stress. So it is efflux of time to protect and save the eyes from these types of refractive errors (such as myopia, hypermetropia, presbyopia, astigmatism). In Ayurveda, has mentioned various measures to keep vision normal in the from of *Trataka Yoga Kriya*, *Anjana*, *Trapana*,

Ashchotana etc. Out of these the *trataka* is one of *shatkriya* which is very useful in eye disorders. It can improve vision by promoting mental focus and by strengthening and relaxing our eye muscles, such muscles are responsible for controlling the eyeball movements.

KEYWORDS: Eyeball, Refractive Error, *Trataka Yoga Kriya*.

INTRODUCTION

Refractive errors is an optical defect in which rays of light from optical infinity fail to converge on the fovea in the non-accommodating eye. Cornea and lens, the main ocular refractive elements, form a relative thick lens refracting complex that operates as functional syncytium. The outcomes of cornea –lens interactions on incident beam of light are refracted rays destined for the fovea. However, not all refracted rays will reach the fovea, some fall

short while others exceed it.^[2] Refractive Errors occurs due to changes in lifestyle, more uses of electronic instruments. An estimation of the number of people worldwide with refractive error ranges from 8 million to 2.3 billion. Among these, 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 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. Hence the main motto of vision 2020 mandates 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.^[3]

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 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.^[4] There are six procedures which are very useful to clean and store the health in naturopathy and yoga known as *shatkarma*. *Trataka* is one of them which is very useful in eye disorders. If *Trataka Yoga Kriya* done regularly, it can maintain eye health and prevent refractive errors in day to day life.

LITERATURE REVIEW

Normal Anatomy of Eyeball^[1]

Sense of sight perceived through retina of the eyeball is one of the five special senses. Each and every component of its three coats is assisting the retina to focus the light properly. About 75% of afferents reach the brain through the eyes. Adequate rest to eye muscles is important. The camera closely resembles the eyeball in its structure.

Shape – Spherical Diameter – Anteroposterior is about 24 mm

Three Coats

1. Fibrous Coat –Sclera And Cornea
2. Vascular Coat/Uveal Tract – Choroid, Ciliary Body, Iris
3. Nervous Coat –Retina

Light entering the eyeball passes through several refracting media from before backwards- Cornea, The Aqueous Humour, The Lens, The Vitreous Body.

The anteroposterior diameter of the eyeball and shape and curvature of the cornea determine the focal point, changes in these result in refractive errors.

Muscles – For the Movements of Eyeball

Muscle	Vertical axis	Main action horizontal axis	Anteroposterior axis
Superior rectus	Elevates	Adducts	Rotates medially (intorsion)
Inferior rectus	Depresses	Adducts	Rotates laterally (extortion)
Superior oblique	Depresses	Abducts	Rotates medially (intorsion)
Inferior oblique	Elevates	Abducts	Rotates laterally(extortion)
Medial rectus	–	Adducts	–
Lateral rectus	–	Abducts	–

Refractive error

It is a problem with focusing light accurately onto the retina due to the shape, anterioposterior diameter of the eyeball. The most common type of refractive error are near-sightedness(myopia), far-sightedness(hypermetropia), astigmatism and presbyopia.

Near –sightedness (myopia)

In which parallel rays of light coming from infinity are focused in front of the retina when accommodation is at rest.

Causes – Cornea or crystalline lens with too much curvature (refractive myopia) or

An eyeball that is too long (axial myopia)

Far –sightedness (hypermetropia)

In which parallel rays of light coming from infinity are focused behind the retina when accommodation is at rest.

Causes –cornea or crystalline lens with not enough curvature (refractive hyperopia) or

An eyeball that is too short

Astigmatism

The cornea being the wrong shape.

Cylindrical errors cause astigmatism, when the optical power of the eye is too powerful or too weak across one meridian, such as if the corneal curvature tends towards a cylindrical shape.

Presbyopia

Aging of the lens of the eye such that it cannot change shape sufficiently.

Trataka yoga kriya^[5]

Hatha yoga is described in the early yoga Upanishads and for the first time it has explained *shatkarma*. It is a very precise and systemic science. 'Shat' means 'six' and 'karma' means action. The shat karmas consist of six purificatory practices. According to both Hatha yoga and Ayurveda, an imbalance of the *doshas* will result in illness. The *shatkarma* are also used to balance the three *doshas* or humour in the body. These practices are used in order to purify the body of toxins and to ensure safe and successful progression along the spiritual path.

The word *trataka* means 'to look' or 'to gaze'. It is last of the shat karmas. It acts as stepping stone between physically oriented practices and mental practices which lead to higher states of awareness. *Trataka* is called the third eye meditation. Affects the *ajna chakra* or third eye. *Trataka* is one of the *shatkarma* which is very useful in eye disorders. It is good for vision. If practices regularly, it can prevent refractive error and use of spectacles in day to day life.

Trataka Yoga Kriya includes

1. *Bahiranga Trataka*
2. *Madhya Trataka*
3. *Abhyantar Trataka*

According to *hathayogapradipika* —^[6]

Nirikshennishchaldrusha sukshmalakshyam samahita:/
Ashrusampatparyantmacharyaistratakam smrutam //

- *Hathayogapradipika chapter 2 /31*

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

Technique of *Trataka*

^[5]

Traditionally many types of *trataka* are practiced such as,

- Constant gazing at the tip of a wick of a lamp flame produced from clarified butter(ghee) or upon simple candle light
- Staring at the rising sun
- At the moon
- The green grass or tree leaves
- The clear water of a lake
- Some transparent glass
- The sky
- A small round object
- A minute black spot on a white background.

How to do *Trataka* ?^[5]

- *Trataka* should be done in a meditative sitting posture such as *Siddhasana*, *Padmasana*, *Sukhasana* or *Vajrasana*.
- Preparatory eye exercise - up and down, right and left, diagonal, rotational movement of eyeball.
- The eye should be kept focused at the tip of the flame or at the painted dot far away but directly in line with the normal visual axis, till tears start flowing.
- The area of central fixation should be gradually reduced, because the smaller the area, the better the fixation.

Precautions and Contraindications^[5]

- *Trataka* like other intricate yogic exercises should be learned under the direct guidance otherwise there is every possibility that eye muscles as well as the nervous system may be damaged.
- Eyes should be splashed and washed with cold water immediately after the *trataka* practice.
- Avoid using external eye medicine or solution after *trataka* and rubbing the eyes.
- Avoid doing *trataka* on the burning sun. For better eye health, it is advised to sit with closed eyes, facing the sun. *Trataka* on the sun with open eyes should be performed in the early morning and late afternoon.
- Some bodily exercises before and after *trataka* are necessary to revitalize the tissues and nerves.
- Do not practice if you get headache during *trataka*.

Mechanism of *trataka kriya*^[8]

Trataka is a meditative technique that switches off the sensory input to the brain through concentration 'Ekagrata'. during this procedure-

The eye receive the light & energy generate into it → During the period of gazing an image formed on the retina at the back of the eye → The optic nerve carries it to the visual cortex, situated in the occipital part of the brain, which has control over the visual side → It awakens the dormant brain centres, charges the neurons & connect it to the rest of conscious awareness → Eye muscles strengthen & its connection with the brain helps to improve the vision as well as focusing power. When focus keep steady on one thing at a time, the mind comes to rest.

Benefits of *trataka kriya*

Tratakphalam^[7]

'Evambhyasyogen shambhavi jayate dhruvam /

Netraroga vinashyanti divyadrushti prajayate ||'

Shri Gherand Samhita (Yogashastra) chapter 1 sutra -55

- Due to *trataka shambhavi mudra* is enlightened, all diseases of eyes are cured and Divya Drushti can be obtained.
- ^[5]The *trataka* exercises including the nose tip gaze, eyebrow Centre gaze and right and left shoulder gaze, etc., especially train and strength the eye muscles- particularly the four pairs of muscles controlling the upward, downward, right and left movements of the eyeballs.
- Defects of vision and other eye troubles, which force people to use glasses or contact lenses, are cured by *trataka*.
- Gazing at various objects of nature accustoms the eyes to the varied influence of light and environments etc. the eye muscles generally act asymmetrically in the ordinary use of the eyes, and thus produce eye strain or weariness, which further aggravates visionary troubles. The regular and systemic practice of various eye exercise of *trataka* can correct all these.
- *Trataka* can increase the vision so much so that even the smallest particle in the dead darkness becomes visible.
- Inflammation of the eyes, styes, astigmatism, myopia, hypermetropia and presbyopia etc., in short all the eye problems can be corrected by *trataka*.

- *Trataka* vitalizes vision by accelerating blood circulation in and around the area of the eyes and naturalizes eye infections by destroying the microbes through tears.
- By directing the gaze at the eyebrow Centre, the olfactory nerves and the optic nerves are stimulated and as a result, the autonomic and the central nervous systems are awakened.
- There is a close relationship between mind and vision, thus *trataka* not only maintains the physical health of eyes but also helps a great deal in controlling the mind.
- It causes a soothing effect on the cranial nerves, thus enabling the mind to become one – pointed.
- It greatly improves memory and willpower and helps to attain perfection in Samyama (i.e. Dharana, Dhyana, Samadhi) as described in Patanjala Yoga.
- Laboratory tests on *trataka* have proved that it brings back certain repressed experiences to level of consciousness.
- For the ocular health, in addition to the *trataka* practice, stroking, moving, pressing, palming (as described in (*satkarma –sangraha*) of the eyes are also quite beneficial.

REFERENCES

1. BD Chaurasia, human anatomy-3, eyeball chapter 288, sixth edition, CBS Publishers & Distributors Pvt Ltd.
2. <https://www.researchgate.net>
3. Efficacy of *trataka* in improvement of vision in myopic and hypermetropic children by Badwaik premkumar panjabrao. IJAAR VOLUME II ISSUE, 6 MAR-APR 2016.
4. A clinical study to evaluate the efficacy of *trataka* yoga kriya and eye exercises (non-pharmacological methods) in the management of timira (Ammetropia & Presbyopia) by G. Gopinathan et.al <https://www.ncbi.nlm.nih.gov>
5. *Trataka* or Yogic Gazing –<https://dokumen.site>
6. Pt. Hariprasad Tripathi. 1st Ed, Choukhamba krishnadas academy varnasi. Hatha Yoga Pradipika with 'hari' hindi commentary, 2006; 46-2/31.
7. Raghvendra Sharma Raghav, choukhamba Sanskrit pratishthan, Delhi. Shri Gherand Samhita (Yogashastra), 2009; 15-1/55.
8. <https://fitsri.com> Meditation.