



## Effect of Trataka Yoga and Ocular exercises in Timir – A clinical study on Ammetropia and Presbyopia.

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### ABSTRACT

Timira is an ocular condition described as a spectrum of visual disturbances ranging from mild blurring of vision to the possibility of irreversible vision loss. Based on the involvement of different Dhatus (body tissues), the disease is broadly classified into two stages. The early stage, known as Uttana, involves Rasa, Rakta (blood), and Mamsa Dhatu (muscle tissue). When the Doshas localize in the first and second Patala, refractive errors are commonly observed, while presbyopia is primarily associated with the involvement of Mamsa Dhatu. The present study focused exclusively on the Uttana stage of Timira.

A clinical trial was conducted on 66 patients diagnosed with Timira. Participants were divided into two main groups, each further categorized into four subgroups: myopia, hypermetropia, astigmatism, and presbyopia. Group A underwent eye exercises based on the Bates method, while Group B practiced Trataka Yoga Kriya. After enrollment, both subjective and objective parameters were evaluated before the intervention, throughout the treatment period, and after completion of therapy. The findings revealed significant subjective improvement in symptoms in both groups; however, objective measurements showed minimal change.

**Keywords:** Eye exercises, refractive errors, Timira, Trataka Yoga Kriya.

## INTRODUCTION

Refractive errors represent one of the most common causes of visual impairment worldwide, affecting millions of individuals across both developed and developing countries. Although global estimates vary widely, a large proportion of these visual problems remain uncorrected, making refractive error a major public health concern. Recognizing its growing impact, India implemented a national refractive error control program in 2006. Earlier reports from the 1990s had already highlighted uncorrected refractive error as a leading contributor to visual impairment and preventable blindness. These concerns ultimately contributed to the World Health Organization's Vision 2020 initiative, "The Right to Sight," which emphasized the urgent need for accessible and affordable strategies to manage refractive errors globally. Myopia, in particular, has consistently emerged as the most prevalent refractive condition.

Different refractive errors are associated with varied clinical concerns. Myopia is often linked with an increased risk of retinal complications, while other refractive conditions commonly present with symptoms such as eye strain and visual fatigue. Although refractive surgeries have gained popularity as corrective options, their use may be limited by factors such as age restrictions, cost, potential complications, postoperative dryness, and risk of infection. Newer approaches such as genetic therapies are still under investigation and have not yet demonstrated consistent outcomes.

Modern lifestyle factors—including prolonged screen use, occupational demands, and limited awareness of eye health—play a significant role in the development and progression of refractive errors. Therefore, there is a growing need to complement existing treatments with safe, affordable, and preventive approaches that promote ocular health.

In this context, non-pharmacological interventions such as eye exercises and yogic practices have attracted attention. The Bates method of eye exercises has been practiced in several institutions in India, though it remains insufficiently explored in scientific literature. Similarly, Trataka Yoga Kriya, a traditional yogic practice widely performed across the country, is believed to enhance visual function and concentration.

Considering these perspectives, the present study was designed to evaluate the potential role of these non-pharmacological approaches in the management of refractive errors, with specific focus on Timira.

## AIMS AND OBJECTIVE

The present study aimed to assess the effectiveness of eye exercises and Trataka Yoga Kriya in the management of Timira, with special reference to ametropia and presbyopia.

## MATERIAL AND METHODOLOGY

The study was conducted on patients attending the Outpatient and Inpatient Departments of Shalaky Tantra in College. Individuals presenting with signs and symptoms of Timira associated with ametropia and presbyopia were included in the study, regardless of gender, religion, occupation, or educational background.

A total of 66 patients, accounting for 132 eyes, were enrolled. A detailed case record proforma was specially prepared to document clinical findings comprehensively from both Ayurvedic and modern ophthalmological perspectives.

### Sampling Technique

A total of 66 patients were enrolled and randomly allocated into two main groups, each further divided into four subgroups based on the type of refractive error—myopia, hypermetropia, astigmatism, and presbyopia. Group A consisted of 32 patients, while Group B included 34 patients.

### Inclusion Criteria

Patients presenting with clinical features of Prathama (first) and Dwitiya (second) Patalagata Timira.

Individuals diagnosed with functional refractive errors such as myopia, hypermetropia, astigmatism, and simple presbyopia.

Patients experiencing asthenopic symptoms including headache, watering of eyes, ocular discomfort, and visual fatigue.

### Exclusion Criteria

Patients with lenticular or corneal opacities.

Individuals with any other diagnosed ocular pathology.

### Assessment Criteria

Evaluation was carried out using both Ayurvedic descriptions of Timira and modern ophthalmological parameters. Objective assessments included retinoscopy, autorefractometry, Ascan biometry, and keratometry to comprehensively evaluate treatment outcomes.

## **Grouping of Participants**

### **Group A**

This group included 32 patients, comprising individuals with myopia (10), astigmatism (10), hypermetropia (6), and presbyopia (6). Participants in this group practiced a set of eye exercises once daily for a period of three weeks.

### **Group B**

A total of 34 patients were enrolled in this group, including cases of myopia (10), astigmatism (11), hypermetropia (7), and presbyopia (6). These participants performed Trataka Yoga Kriya once daily, either in the morning or evening, for three weeks.

### **Intervention Protocol**

The Bates method of eye exercises included the following practices: sunning, eye washing, palming, candle-light reading, shifting and swinging, ball-tracking activities, vaporization, and application of a cold pad.

Trataka Yoga Kriya comprised both Bahiranga Trataka (external gazing) and Antaranga Trataka (internal concentration) techniques.

### **Follow-up**

After completion of the intervention period, all participants were monitored for an additional one month to identify any adverse effects or changes following therapy.

### **Statistical Analysis**

The collected data were analyzed using mean, standard deviation, and standard error. An unpaired t-test was applied to determine statistical significance.

P < 0.001: Highly significant

P < 0.01: Significant

P < 0.05–0.10: Not significant

Criteria for Overall Therapeutic Outcome

### **Subjective Evaluation**

Cured: 100% relief without recurrence during follow-up

Marked improvement: >75% symptom relief

Moderate improvement: 51–75% relief

Mild improvement: 26–50% relief

Unchanged: ≤25% relief

Objective Evaluation

Cured: ~1D reduction or complete remission

Marked improvement: ~0.75D reduction

Moderate improvement: ~0.50D reduction

Mild improvement: ~0.25D reduction

Unchanged: No change in refractive power

## OBSERVATIONS AND RESULTS

Among the 66 participants, the majority (45.45%) were aged 16–30 years. Most subjects belonged to the Vata-Pitta Prakriti (53.03%), reported sleep deprivation (71.21%), and were engaged in indoor activities (83.33%). Prolonged screen exposure was common, with 50% watching television and 59.09% using computers for 2–4 hours daily.

### **Effect of Therapy**

Group -Eye Exercise Group Myopia:

Significant improvement was observed in distant vision clarity (50%) and ocular fatigue (54%). Minor improvement in intermittent visual clarity was noted.

### **Astigmatism:**

Moderate but statistically insignificant relief was observed in distant vision difficulty, headache, watering, eye strain, and difficulty in viewing fine objects.

### **Hypermetropia:**

Significant relief was noted in burning sensation (88%), headache (72%), and watering (66%). Improvement in blurred vision remained minimal.

### **Presbyopia:**

Symptomatic relief was present but objective measurements showed only minor, statistically insignificant changes. Group B – Trataka Group Myopia:

Moderate relief in eye strain, watering, and intermittent clarity of vision was observed.

### **Astigmatism:**

Improvement in headache, watering, and distant vision difficulty was seen but remained statistically insignificant.

### **Hypermetropia:**

Significant improvement was noted in headache and watering, while other symptoms showed mild change.

**Presbyopia:**

Symptomatic relief was mild and objective parameters showed minimal change.

Overall Therapeutic Effect

No patients achieved complete cure or marked improvement in either group.

Eye Exercise Group

Moderate improvement: 3.20%

Mild improvement: 64.45%

No improvement: 32.25%

Trataka Group

Moderate improvement: 6.25%

Mild improvement: 56.25%

No improvement: 37.5%

Subjective symptoms improved more than objective refractive measurements in both groups.

**DISCUSSION**

Classical Ayurvedic literature explains Timira as a disorder influenced by Dosha localization in ocular layers (Patalas). Intermittent clarity of vision was noted particularly in mild refractive errors. Myopia and hypermetropia commonly showed Kapha involvement, whereas astigmatism and presbyopia exhibited Vata predominance.

Both interventions primarily function as relaxation techniques. Mental and ocular relaxation improves circulation in Rasa and Rakta Dhatus and enhances ocular comfort.

Mechanism of Eye Exercises

Eye exercises help reduce asthenopia by:

Relaxing extra-ocular muscles during convergence

Reducing ciliary muscle spasm

Improving tear film stability

Decreasing eye strain and headache

Mechanism of Trataka

Trataka enhances concentration, stimulates ocular muscles, and promotes adaptation of rods and cones through light–dark exposure. This may improve visual efficiency and reduce fatigue. Modern lifestyle practices, especially prolonged screen use, contribute significantly to visual strain. Regular eye relaxation techniques may therefore play a preventive and supportive role in eye health.

## CONCLUSION

A mild improvement in visual clarity, contrast sensitivity, and fine object perception was observed in both groups. Although objective refractive changes were minimal, subjective relief was significant—especially in the Trataka group.

These findings suggest that eye exercises and Trataka Yoga Kriya can serve as safe, low-cost adjunct therapies for managing refractive errors and visual fatigue. However, they should be combined with appropriate medical treatment, lifestyle modification, and dietary measures for optimal results.

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