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RESEARCH ARTICLE

Effect of Trataka Exercise on Asthenopia Among Junior College Students

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Abstract: Introduction: Asthenopia, or eye strain, is becoming increasingly common among students who spend long hours studying or using digital screens. It often causes eye discomfort, headaches, blurred vision, and difficulty in maintaining focus, which can interfere with learning and daily activities. Trataka, a simple yogic eye exercise that involves steady gazing at a fixed point, is traditionally believed to relax the eyes, reduce strain, and improve concentration. This study was carried out among junior college students in the Sangli-Miraj- Kupwad area to assess whether regular practice of Trataka could help reduce the symptoms of asthenopia. The study compared students who performed Trataka exercises with those who did not, aiming to identify its effectiveness in relieving eye strain. Methodology: The study adopted a quasi-experimental pre-test post-test control group design with a sample size of 130 students aged 16 to 18 years. Data were collected using the modified 17-item Asthenopia Severity Questionnaire (17-ASQ) along with a demographic data sheet. The experimental group received Trataka exercise intervention for 14 consecutive days, while the control group did not receive any intervention. On the 15th day, a post-test was conducted for both groups using the same assessment tool. Data were analyzed using frequency and percentage distribution for demographic variables, and an unpaired t-test was applied to evaluate the effectiveness of the intervention. Result: The study revealed a relatively high prevalence of asthenopia among students, highlighting it as a significant health concern. In both groups, most participants were between 16 and 17 years of age, with a higher proportion of females. Analysis of screen time showed that spending 1–2 hours daily on digital devices was most common. Before the intervention, 61.54% of students in the experimental group had mild asthenopia and 38.46% had moderate symptoms, while in the control group, 83.08% had mild and 16.92% had moderate asthenopia. After the intervention, all students in the experimental group showed only mild symptoms, indicating a noticeable improvement, whereas in the control group, 20% continued to experience moderate asthenopia. Statistical analysis using an unpaired t-test showed a significant difference between the two groups ($p = 0.00001$), confirming that the Trataka eye exercise was effective in reducing asthenopia symptoms among students. Conclusion: Hence it was proved that trataka exercise is effective in reducing the asthenopia among junior college students. It was a convenient and easy method that can be implemented in clinical, schools and home settings where people can practice more.

Keywords: Trataka exercise; asthenopia; eye strain; visual fatigue; yoga therapy; students; relaxation technique; non-pharmacological intervention.

INTRODUCTION

Human beings have five senses: taste, smell, hearing, and touch through the skin, tongue, and nose. The most important sense organs are unquestionably our eyes. Individuals, families, and society suffer greatly from blindness and low eyesight. Along with a drop in life quality and a rise in mortality, these effects may have far-reaching economic effects. [1]

The medical condition known as asthenopia is characterized by fatigue or eye strain. According to the World Health Organization (WHO), asthenopia is a symptom characterized by eye strain, fatigue, or discomfort, often accompanied by headaches, blurred vision, or eye dryness. The frequency of asthenopia in school-age children and teenagers varies greatly between nations; studies in India have found that it ranges from 12.4% to 57.9%. [2]For people under the age of 18, prevalence rates range from 12.4% to 32.2%, while for students under 30, they range from 57%. In past studies, asthenopia has been linked to a few environmental and psychosocial factors. [2]

The prevention of asthenopia, or eye strain, includes lifestyle modifications, medical interventions, environmental and behavioral changes, ergonomics, and technology and tools. Herbal remedies (Triphala, Aloe Vera, and Saptamrita Lauh), diet and nutrition (foods high in ghee and vitamin A), eye exercises, and Trataka (candle gazing) are additional Ayurvedic techniques for preventing asthenopia. They include focusing on a flame for a prolonged period, which increases attention and strengthens eye muscles. Eye Rotation: By rotating the eyes in circular motions, this technique relieves tension

and promotes flexibility (Dinacharya and Avoid Eye Stress). [4]

Trataka, or "concentrated gazing," is a type of meditation. It is commonly referred to as "candle gazing." Originally, one of the "six actions," or shatkarmas, employed to purify the internal organs was Trataka. "Trataka," or "yogic practice of concentrated gazing," is a traditional Hatha yoga technique for the holistic development of our body, mind, and soul. Trataka facilitates the connection between mental and physical endeavors, which leads to heightened consciousness in the end. Trataka helps people meditate and focus deeply, aids in the eradication of numerous neurological disorders and obstacles, and more. to look into how the practice of Trataka impacts the eye health of kids in physical education. [5]

A study was conducted to assess the effectiveness of Progressive Muscle Relaxation Therapy (PMRT) on anxiety among elderly individuals in selected senior citizen clubs in the Sangli, Miraj, and Kupwad corporation area. Anxiety is common among older adults, affecting 10–20% and often manifesting as irritability, sleep disturbances, and physical symptoms such as headaches and muscle tension. The study included 80 elderly participants and employed a quasi-experimental pre-test post-test control group design. Data were collected using Zung's Self-Rating Anxiety Scale, and PMRT was administered to the experimental group. The study aimed to determine whether relaxation therapy could significantly reduce anxiety levels in the elderly.[6]

MATERIAL AND METHOD

This study employed a quasi-experimental pre-test-post-test control group to evaluate the effect of trataka exercise on asthenopia among students at junior college. The research was conducted in the Sangli, Miraj, and Kupwad corporation areas on students aged 16 to 18 years, who shows symptoms of asthenopia and who don't have any other eye disorder. Not included were those who were not willing to participate or had eye injuries. The sample was selected from G power analysis. The total sample included was 130. 65 were allocated to the experimental group, and 65 were in the control group.

Students who met the inclusion criteria were selected using the cluster random sampling method. After obtaining their consent to participate, data collection was initiated. On the first day, asthenopia was identified using the modified 17-item Asthenopia Survey Questionnaire. Among those identified with asthenopia, the frequency and intensity of symptoms were assessed. The experimental group underwent trataka exercise for 10 minutes daily over a period of two weeks, while no intervention was given to the control group. On the 15th day, a post-test assessment of asthenopia was conducted in both groups.

The exercise was conducted by Making a participant sit comfortably in a quiet, dimly light room. Ensured participant's back is straight, and shoulders are relaxed. Placed a candle at eye level about 2-3 feet away. Then participants were instructed to close their eyes gently. Asked them to take a few deep breaths to relax body and mind. Then they instructed them to open their eyes slowly and fix their gaze on the flame's tip. Participants were instructed to gaze steadily at the flame without blinking as long as possible, ideally for 1-3 minutes.Instructed to maintain a soft, relaxed gaze without straining their eyes. Let their mind become calm, focusing solely on the flame and ignoring any external thoughts. When the eyes begin to water or feel tired, gently close them. Then focus on the afterimage of the flame that appears on inner eyelids. Maintained this mental image for about 1-2 minutes, letting it gradually fade. Open the eyes and repeat this 2-3 times for 10 min. Allowed a brief rest period between each session to avoid overstraining eyes. The trataka exercise continued for 2 weeks.

The institutional ethics committee of Bharati Vidyapeeth (Deemed to be University), College of Nursing, Sangli, approved the study (IECBVDUCON, Sangli Maharashtra Reg. No. BVDU/CON/SAN/594/2024-2025). and informed consent was obtained from all participants, who were thoroughly informed about the study's objectives, procedures, and their right to withdraw at any time without penalty. Data was collected, the study was summarized using frequency and percentage distribution, and a paired t-test was conducted to determine the statistical significance of changes in sleep quality and well-being between the pre-test and post-test assessments, with statistical significance set at $p < 0.05$.

RESULTS

FIGURE 1. A total of 550 junior college students were selected to identify asthenopia using the asthenopia survey questionnaire. Each student completed the questionnaire, and after analyzing the responses to all 17 questions, it was determined that 145 students had asthenopia. Of these, 130 students were included in the final study, with 65 placed in the experimental group and 65 in the control group.

STATISTICAL ANALYSIS:

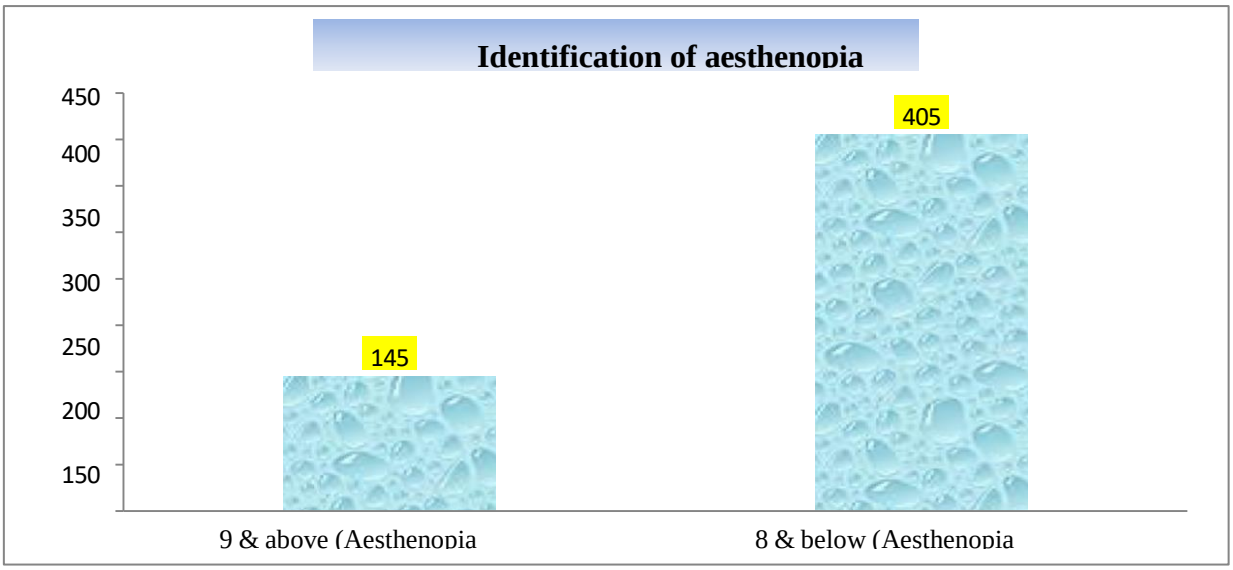


TABLE 1. In the experimental group, most participants were 16 (50.77%) or 17 years old (46.15%), while in the control group, 17-year-olds (52.31%) were the majority, followed by 16-year-olds (46.15%). Both groups had a higher proportion of females, with 63.08% in the experimental and 66.15% in the control group. Regarding class, more experimental participants were in 11th standard (61.54%), whereas the control group had more in 12th standard (52.31%). Screen time of 1–2 hours were most common in both groups, with 58.46% in the experimental and 49.23% in the control group, followed by 3–4 hours, and very few reporting over 5 hours.

Table No. 1 Frequency and percentage distribution of demographic variables. n = 65 + 65

Sr.no.	Demographic variables		Experimental group		Control group	
			f	%	F	%
1.	Age (in yrs.)	16	33	50.77	30	46.15
		17	30	46.15	34	52.31
		18	2	3.08	1	1.54
2.	Gender	Male	24	36.92	22	33.85
		Female	41	63.08	43	66.15
3.	Class	11th standard.	40	61.54	31	47.69
		12th standard.	25	38.46	34	52.31
4.	Screen time (in hrs.)	1 – 2	38	58.46	32	49.23
		3–4	21	32.31	30	46.15
		5–6	5	7.69	3	4.62
		7 and above	1	1.54	0	0

FIGURE 2. Illustrates the distribution of asthenopia severity among students before the Trataka exercise intervention. In the experimental group, 40 students (61.54%) experienced mild asthenopia, while 25 students (38.46%) had moderate asthenopia. In the control group, 54 students (83.08%) reported mild asthenopia, and 11 students (16.92%) had moderate asthenopia prior to the intervention.

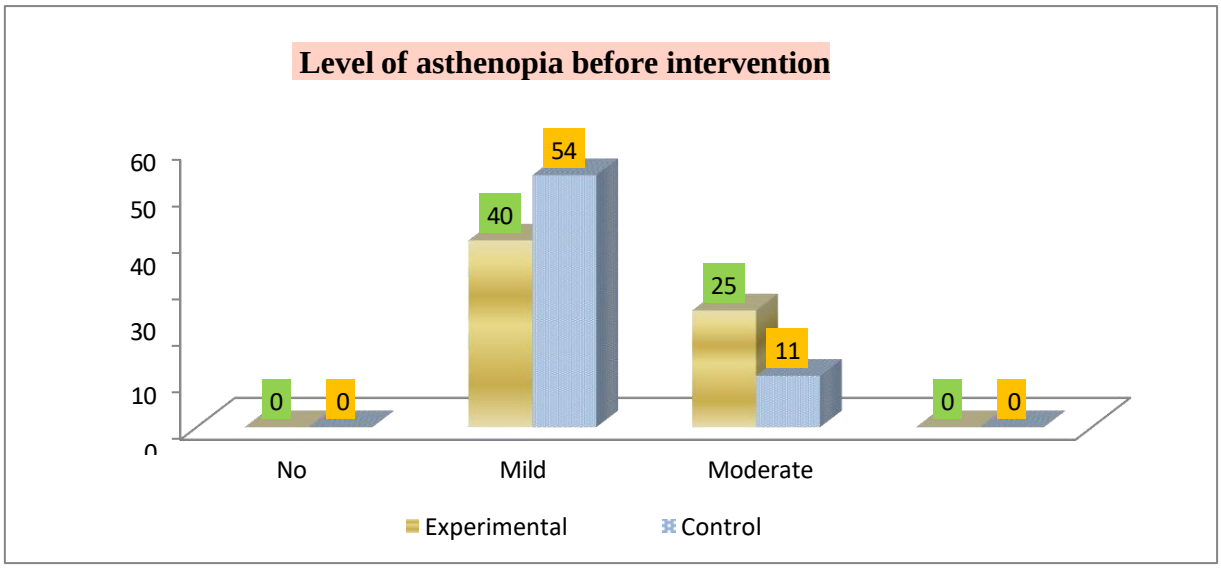


FIGURE 3. The table shows the distribution of asthenopia severity among students after the Trataka exercise intervention. In the experimental group, all 65 students (100%) had mild asthenopia. In the control group, 52 students (80%) had mild asthenopia, while 13 students (20%) continued to experience moderate asthenopia in the post-test.

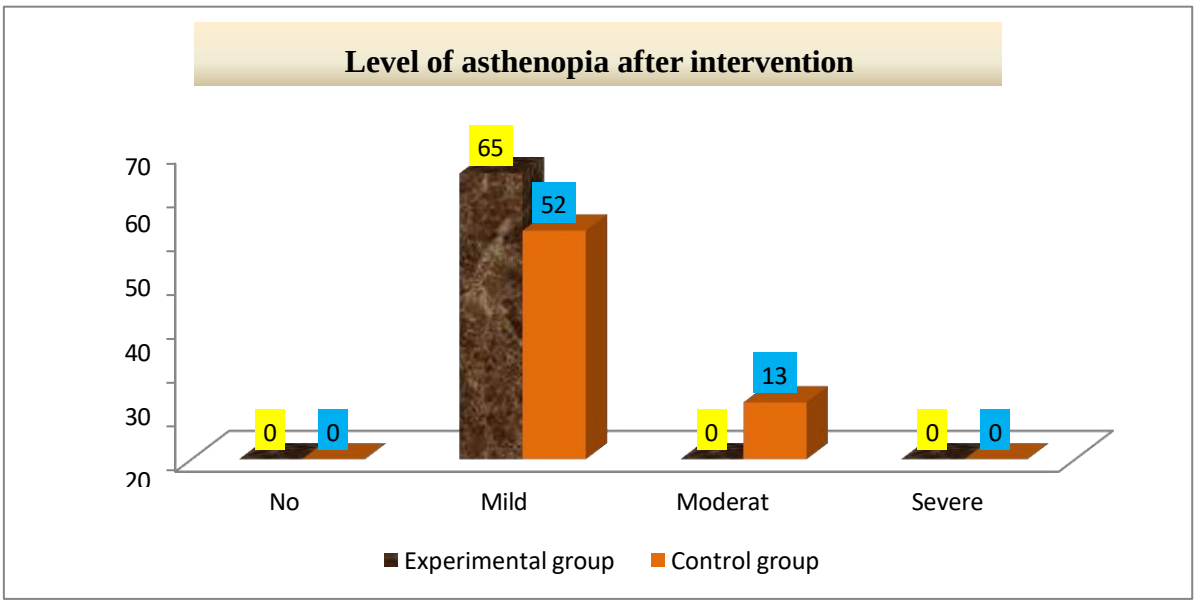
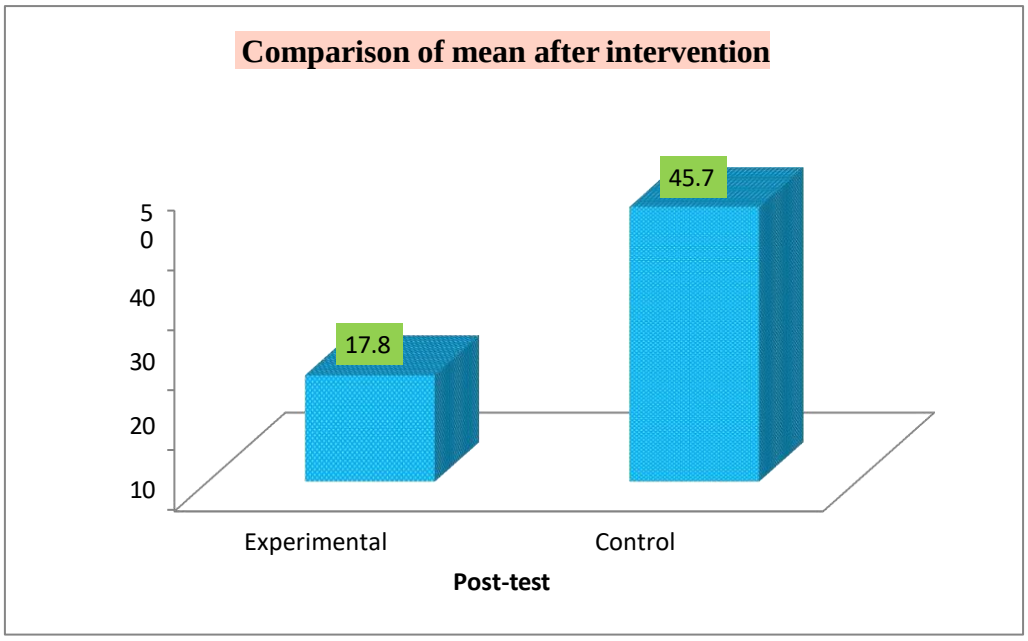


FIGURE 4. An unpaired t-test was conducted at a 5% significance level to analyze the post-test results. After the intervention, the experimental group had a mean score of 17.84 with a standard deviation of 3.898, whereas the control group had a mean score of 45.76 with a standard deviation of 6.907. The calculated unpaired t-value was 28.3839, and the p-value was 0.00001, which is less than 0.05, indicating a statistically significant difference between the two groups.



DISCUSSION

The study found that following the Trataka exercise intervention, the experimental group showed a marked improvement, with all students reporting only mild asthenopia symptoms. In contrast, the control group continued to experience more frequent and moderate symptoms of asthenopia. Overall, the findings indicate that the Trataka exercise was effective in significantly reducing the frequency and intensity of asthenopia, demonstrating its beneficial role in alleviating eye strain among students compared to those who did not receive the intervention.

Soumya, Manju Chhugani, A true experimental study assessed the impact of Trataka on vision and asthenopia (eye strain) among 30 student nurses with refractive errors in Delhi. The experimental group performed Trataka exercises, and assessments were conducted using the Snellen chart for vision and a structured checklist for asthenopia. The study concluded that Trataka exercises effectively reduced asthenopia among student nurses with refractive errors. However, no significant improvement in vision was observed in the experimental group compared to the control group. [1]

A similar study by Ghorpade and Bhore (2023) evaluated the effectiveness of **Emotion-Focused Therapy (EFT)** on self-esteem and other psychosocial problems through a systematic review. Their findings highlighted that targeted therapeutic interventions can significantly improve emotional well-being and reduce psychosocial stressors among participants. This aligns with the present study, where **Trataka exercise**, a focused yogic practice, demonstrated a significant reduction in asthenopia and improved visual comfort among students. Both studies emphasize that structured, non-pharmacological interventions can positively influence both physiological and psychological outcomes, supporting the integration of such practices in student wellness programs. [7]

CONCLUSION

The study demonstrated that Trataka exercise effectively reduced the severity of asthenopia among junior college students, particularly for those experiencing prolonged screen time and academic stress. The significant improvement in the experimental group, with all students reporting only mild symptoms post-intervention, highlights the potential of Trataka as a non-pharmacological solution to address eye strain. Given the positive results, it is recommended that Trataka exercises be included in wellness programs at educational institutions to support students' eye health and overall well-being, contributing to better academic performance.

REFERENCES: -

1. Bhuvaneshwari G, Bernard C. A study to assess the effectiveness of ophthalmic exercises on visual discomfort among computer workers in a selected company in Chennai.
2. Li L, Zhang J, Chen M, Li X, Chu Q, Jiang R, et al. Contribution of total screen/online-course time to asthenopia in children during the COVID-19 pandemic via influencing psychological stress. Front Public Health. 2021;9:736617.
3. Abuallut I, Qumayi EA, Mohana AJ, Almalki NM, Ghilan ME, Dallak FH, et al. Prevalence of asthenopia and its relationship with electronic screen usage during the COVID-19 pandemic in Jazan, Saudi Arabia: a cross-sectional study. Clin Ophthalmol (Auckl). 2022;16:3165–74.
4. Ambade RA, Ambade AK, Sagdeo MM, Tirpude PA. Musculoskeletal disorders, asthenopia, and associated risk factors in computer workers of Hingna Taluka of Nagpur: a cross-sectional study.

Madjid D. Effect of Trataka Exercise on Eye Health of Students with Eye Problems. 2022 Apr 6.

5. Devraj MM, Ghorpade MN. A study to assess effectiveness of progressive muscle relaxation therapy on anxiety among elderly in selected senior citizen club at Sangli, Miraj, Kupwad Corporation Area. Afr J Biol Sci (South Africa). 2024;6(7):457–65.
6. Ghorpade MN, Bhore NR. Effectiveness of emotion focused therapy (EFT) on self-esteem and other psychosocial problems: a systematic review. Korean J Physiol Pharmacol. 2023;27(3):237–43.