



A CLINICAL STUDY ON THE EFFECT OF OCULAR EXERCISE & YOGA BASED THERAPY TO IMPROVING EYESIGHT OF MYOPIA PATIENTS: AN EXPERIMENTAL STUDY.

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ABSTRACT

The purpose of the study is to find the role of physical exercises in analyzing the effect of myopia disease by experimental analysis of Myopia patients. At present Myopia is a very emerging disease all over the world. The number of young myopia patients is increasing continuously. The most influential factors to increase this problem to used different kinds of digital activities as well as lack of physical activities. These patients suffer from vision problems. This study is based on both kinds of data in which primary data was collected with the help of well-structured questionnaires and secondary data was collected from the National Institute of Medical Science & Research Jaipur Rajasthan India according to convenience. The research methodology has been used in which purposive random sampling implementing to the collection of the data. According to the requirement to analysis, the data we used different statistical tools and techniques has been used like a self-prepared questionnaire, Pen, papers, Visual acuity chart, and smell chart, Auto refract meter, Trail set, Ratinoscope, Eyesight test scale to find out the problem and give some measures to short out the category of myopia with the help of ophthalmologists. Pre and post-test was taken before and after the therapy to find out the difference of Sphere & cylinder in dioptric power of both left (LE) and Right (RE) eyes (SPH +/- 0.25D Reduce = 5%,CYL +/- 0.25D Reduce = 5%). The result is analysis both in Subjective and Objective assessment. After the Overall assessment, we found total improvement was 55% patients, No improvement 45% which is statistically significant at $P < .05$. According to the categorized assessment improvement percentage of High myopia 45%, significant at $p < .05$, Low myopia 72%, significant at $p < .05$, Simple myopia 42.90%, significant at $p < .01$.

Keywords: Myopia treatment, Yoga therapy, Eyesight, Trataka kriya, Ocular Exercises

1. INTRODUCTION

The world health organization has estimated that there are approximately 314 million people living with vision impairment. REs (Refractive Errors) are quite common in India and the prevalence of myopia or hyperopia itself is in adults is in 53.1%. If we add Astigmatism, it will go further higher. Near about 10.2% of adults in India are estimated to have uncorrected RE. The numbers are higher in children. RE causing visual impairment and blindness found to be ranging from 5-11% in people over 50 in various studies and reviews. The numbers and prevalence RE as a cause of visual impairment and blindness is significant enough for us to concentrate on the working on reducing RE providing a productive and better life to people. (Meha et.al., 2020)

This research work we mainly focused on Myopia disease which is derived from the Greek word myopia means shortsightedness (Pandey, Bihari and Pandey, 2017). One of the researchers Defines that "the shortsightedness in which parallel rays of light entering the eye at rest are brought to a focus in front of the retina" (Turbert, 2021). Available treatment options for myopia are Optical correction, pharmaceutical treatment like cycloplegic promoters, vision Therapy, orthokeratology, refractive surgeries like (radial keratotomy, excimer laser photorefractive keratectomy), osteopathy. These treatment choices have many problems like post-operative complications, cosmetic problems, eye infection, so to overcome these problems physical exercise like ocular exercises & Yoga-based exercises will be much beneficial for these kinds of patients. But this figure seems to be subjective; because till today, a population-based study had not been carried out. Among these, the majority of refractive errors are uncorrected. In 2006, a refractive error program had been implemented in India (Monkbot, 2020). In 1990, papers published from India highlighted the very fact that uncorrected refractive error was a big explanation for blindness and therefore the major explanation for impaired vision the very fact became initiation for World Health Organization (WHO) to think about the Vision 2020 global program – "The right to sight" – Refractive error cannot be ignored as a target for urgent action (Gopinathan, Dhiman, and Manjusha, 2012). Throughout the global survey in developing as well as developed countries myopic group being the main culprit in refractive error (Robaei, et.al., 2006).

Various studies have been carried out on what physical exercise can do for eyesight improvement and for eye health. Numerous of them tested both subjective and objective parameters in different optical fields (myopia, presbyopia, resistance to optical illusions, etc.). The majority of them have tested long-term yoga training. In literature, we found no evidence of the immediate effects of yoga exercises on visual abilities (Gopinathan, Dhiman, and Manjusha, 2012). They mainly discuss about the Trataka yoga therapy to improve eyesight of different eye patients According to involvement of Dhatus (body elements) the condition can be grouped into two stages. On that study only Uttana stage of Timira was considered. The clinical study was done on 66 patients of Timira in two groups of four sub groups each of myopia, hypermetropia, astigmatism, and presbyopia. Group A was subjected to eye exercises (Bates method) and Group B was subjected to Trataka Yoga Kriya. The study indicates that subjectively there are significant results in both the groups but objectively there is not much improvement.

Myopia is very common ophthalmic disease especially in children and adolescence (Bansal, 2016). They compare the effect of Saptamruta Lauha and Yoga therapy in myopia. On their study they use Materials and methods: In Group A, Saptamrita Lauha 250 mg twice daily with unequal quantity of honey and Ghrita was administered while in Group B, patients subjected to Yoga therapy (Jala Neti, Nadi Shodhana, Shitali Pranayama and point Tratak) for 3

months duration with 1 month follow-up. Yoga based exercise improve the eyesight of myopia patients. Increased prevalence of myopia has become a worldwide health problem. Progressivity of myopia is increased by digital eye strain. Digital eye strain is a repetitive strain injury and occurs among 70% computer user. Usually it has strain on the extra ocular muscle and a decreased of visual acuity. Digital eye strain should be reduced to improve visual acuity. Yoga and eye exercises can improve visual acuity (**Gupta, 2020**).

In 2013 Rajendra Lolage and Narayan Jadhav published a study focused on the effect of Yogic exercise on Myopia of high school girls. This experiment therefore included thirty (N=30) high school girls age ranged from 11-15 from Gujarati Kanyaprashala gulmandi Aurangabad. The subjects were divided in to two groups i.e. control group (n=15) and experimental group (n=15) Initial test of Myopia was conducted to all subjects. In training of Yogic Exercises. On this study they included OM stawan, anulom-vilom, Kapalbhati, Bhramri, ujjayi Pranayama, OM recitation, eye exercise Tratak, palming and yoganidra. They use sixty min per day and continue for 1 month, at the end of the study they found that the practice of yogic Exercise was improved the eyesight of high school girls (**Lolage and Jadhav, 2013**).

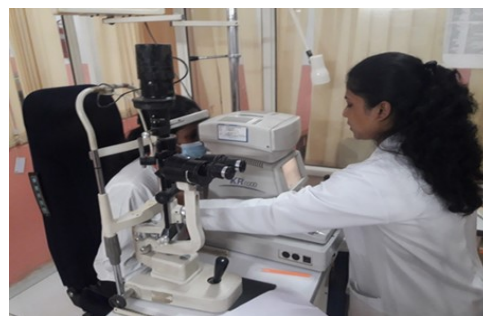
Tommaso Bianchi and Raffaella Bellen on their study in 2020 on the effects of eye yoga exercises on eyesight, done some critical analyses of the effects of eye yoga exercises on eyesight. Some studies deny every form of improvement in this field. However, the results of our study and the evidence found in literature testify the effectiveness of improvements. Some more studies would be useful to determine the efficacy of yoga training – both short- and long-term – on visual abilities, on refractive errors, on presbyopia, and on most serious eye pathologies. (**Bianchi, and Bellen, 2020**).

In the line with the objectives of this study, the researcher had stated the problem to find the role of physical exercises in analyzing the effect of myopia disease by experimental analysis of Myopia patients. It was hypothesized that there will be adverse effect on health to do specific Ocular Exercise & Yoga based therapy as well as it improve the eyesight of Myopia patients.

2. METHODOLOGY

2.1 Selection of subjects

Primarily we selected 75 subjects randomly especially who are used glass for their vision problem. All subject were tested their vision from the ophthalmology department of NIMS Medical college Rajasthan. After testing their vision we selected actual myopia patients according to their testing report. Finally, with exclusion criteria, we can select 60 patients for the research study. For better specification of the result, we categorized the myopia patients into three subgroups according to their vision reports.



2.2 Sample Size

Total 60 respondents age 18 to 30, both male & female, diagnosed with a case of myopia recruited through Criteria based specify purposive random sampling. The study area focused on young myopia patients between Myopia patients suffer some specific problem

2.3 Demographic Information

Out of 60 patients studied in this work, Male (45%) and Female (55%). Maximum patients (78.99%) were found in the age group of 18–25 years. Major numbers of patients were Hindus (86.36%). Showed sleep deprivation (71.21%) and were performing indoor activities (83.33%). Majority of patients were using smart phone (87%) for 4-6 hours daily. Working on computers (59.09%) for 2-4 hours daily.

2.4 Inclusion criteria and Exclusion criteria

The subject with myopia problems and the subject who have serious problem in eyesight, Eye stress, Using glass for shortsighted problem who was ready to volunteer the participation for the exercise. In this study we exclude the Patients having any lenticular or corneal opacity, or any other known ocular pathology problems.

2.5 Assessment criteria

Pre and post-experimental data in the form of myopia patients were taken from the ophthalmology department of NIMS medical college hospital as per the standard procedure. (Appendix 1, figure: b)

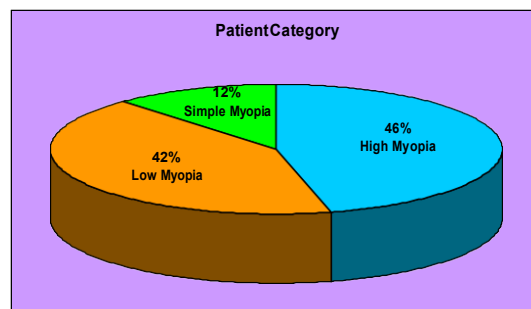
2.6 Tools used for data collection

A self-prepared questionnaire, Pen, papers, Visual acuity chart, and smell chart, Auto refract meter, Trail set, Ratinoscope. Eye sight test scale.



2.7 Categories of Patient

- 2.7.1 High Myopia Vision - (VA) Fc, 6/60 to 6/36p
- 2.7.2 Simple Myopia Vision - (VA) 6/24P to 6/18p
- 2.7.3 Low Myopia vision - (VA) 6/12 to 6/9p



2.8 Administration of Therapy

A Well-structured Consent taken; random allocation of Experimental group received both Ocular and Yoga based exercises. The **Bates method Alternative medicine (2021)** consisted of of eye exercises/ocular exercises i.e. 1. Eyewash, 2. Bilking exercise, 3. Side viewing, 4. Rotational viewing, 5. Up & down viewing, 6. Primary Nasikagra Dristi, 7. Palming, 8. Shifting and Swinging, 9. Vaporization and 10. Cold Pad. The Yoga-based therapy of **Saraswati, Swami Sivannanda, (2002)**. Trataka therapy includes both Bahiranga and Antaranga Trataka., Yoga Nidra Asana or Relaxation, Sarbangasana.



2.9 Training Program

Three weeks five days per week, 30 mins per day, patients were advised to use spectacles or contact lenses on regular basis for three weeks. After three weeks of intervention post optical power and three dimensional constrictive Interference in steady-state (CISS) is suggested being taken and analyze. Follow-up: After completion of therapy, patients were followed up for 1 month to observe any adverse effects of the therapy.



2.10 Statistical analysis

Appropriate Statistical techniques were used to analyze the data for getting valid conclusions. Statistical test based on observations, the data obtained were statistically analyzed in terms of mean, standard deviation, standard error, and 'Z' test was considered. Where the result is significant at $p < .05$. As a tool for Statistical analysis of data we used M.S EXCEL, EZSPSS.COM.

3. RESULTS AND DISCUSSION

TABLE 1
PRE EYE TEST REPORT OF MYOPIA PATIENTS

SL	Age	Gender	VA	PH	With glass	SPH	CYL	AXIS
1	20	F	RE 6/60		RE 6/6	RE -4.50D	-1.25D	180
			LE 6/60		LE 6/6	LE -3.25D	-2.00D	170
2	23	M	RE 6/6p		RE 6/6	RE -0.25D	0.00D	
			LE 6/6p		LE 6/6	LE -0.25D	0.00D	
3	20	F	RE fc 2m		RE 6/12	RE -5.00D	-0.25D	10
			LE fc 2m		LE 6/9	LE -4.50D	-1.00D	160
4	19	F	RE 6/9	RE 6/6	RE 6/9	RE -0.75D	0.00D	10
			LE 6/9	LE 6/6	LE 6/9	LE +0.75D	-1.25D	110
5	21	M	RE 4/60		RE 6/6P	RE -2.25D	-0.50D	115
			LE 4/60		LE 6/6	LE -2.50D	-0.25D	45
6	23	M	RE fc 3m		RE 6/9	RE -3.75D	-1.00D	80
			RE fc 4m		LE 6/9P	LE -4.00D	-0.75D	60
7	20	M	RE 6/60		RE 6/6	RE -1.75D	-0.75D	5
			LE 6/60		LE 6/6	LE -2.75D	-0.50D	175
8	23	F			RE 6/6	RE -0.25D	-1.00D	175
					LE 6/6	LE -0.50D	-0.50D	180
9	22	F	RE 5/60		RE 6/6	RE -3.25D	-3.75D	10
			LE 5/60		LE 6/6	LE -4.00D	-4.25D	150
10	21	M	RE 6/36		RE 6/9	RE +0.50D	-2.25D	90
			LE 6/24P		LE 6/9	LE +0.25D	-2.25D	60
11	22	M	RE 6/9		RE 6/9	RE -1.75D	-0.50D	110
			LE 6/9		LE 6/24	LE -1.75D	-0.75D	115
12	18	F	RE 5/60		RE 6/6P	RE -4.00D	-0.75D	160
			LE fc 3m		LE 6/18	LE -6.25D	-1.50D	170
13	20	F	RE 6/6		RE -6/6	RE -0.25D	0.00D	
			LE 6/6		LE -6/6	LE -0.25D	-0.50D	25
14	21	M	RE 6/6P			RE -0.25D	0.00D	
			LE 6/6P			LE -0.25D	0.00D	
15	19	M	RE 6/6P			RE -0.25D	-0.75D	75
			LE 6/9			LE +0.25D	-1.25D	70
16	20	F	RE 6/24P			RE -1.50D	-0.75D	20
			LE 6/36			LE -1.50D	-0.75D	65
17	19	F	RE 6/6P			RE +0.25D	-0.25D	180
			LE 6/6P			LE +0.50D	-0.50D	180
18	19	F	RE 5/60			RE -4.25D	-1.00D	175
			LE 6/60			LE -1.75D	-1.50D	180
19	20	F	RE 6/60		RE 6/6	RE -4.00D	-0.75D	110
			LE 6/36		LE 6/6	LE -3.75D	-1.00D	15
20	20	F	RE 6/6			RE +0.25D	1.00D	105
			LE 6/6			LE +0.50D	0.00D	
21	21	F	RE fc 2m	RE 6/36	RE 6/6P	RE -6.00D	-0.50D	170
			LE fc 3m	LE 6/60	LE 6/6P	LE -6.00D	-0.75D	180
22	19	F	RE 6/36		RE 6/6	RE -1.50D	0.00D	
			LE 6/36		LE 6/6	LE -1.25D	-0.50D	
23	19	F	RE 4/60		RE 6/6	RE -5.50D	-1.25D	180
			LE 5/60		LE 6/6	LE -5.25D	-1.75D	5
24	23	M	RE 6/6P		RE 6/6	RE -0.25D	0.00D	
			LE 6/6P		LE 6/6	LE -0.25D	0.00D	
25	20	F	RE 6/36	RE -4.00	RE 6/6	RE -4.00D	0.00D	
			LE 6/36	LE -4.00	LE 6/6	LE -4.00D	0.00D	
26	21	M	RE 6/36		RE 6/6	RE -4.00D	0.00D	
			LE 6/60		LE 6/6	LE -4.00D	0.00D	
27	23	M	RE 6/18		REfc 3m	RE -2.50D	-1.00D	5
			LE 6/12		LEfc 3m	LE -2.50D	-0.75D	165
28	22	F	RE 6/6			RE -0.50D	-1.00D	15
			LE 6/6			LE 0.00D	0.00D	160
						LE +0.25D	-0.50D	
29	25	M	RE 6/60		RE 6/6	RE -3.75D	0.00D	
			LE 6/18		LE 6/6	LE -3.75D	-0.25D	135

30	19	F	RE 6/60	RE 6/9	RE 6/6	RE -1.75D	-0.25D	170
SL	Age	Gender	VA	PH	With glass	SPH	CYL	AXIS
			LE fc 3m	LE 6/9	LE 6/6	LE -1.75D	-0.25D	180
31	21	F	RE 6/60	RE 6/9	RE 6/6	RE -0.75D	-0.75D	180
			LE 6/60	LE 6/9	LE 6/6	LE -1.25D	-0.50D	170
32	20	F	RE 6/36	RE 6/9	RE 6/9	RE -1.50D	-1.50D	180
			LE 6/60	LE 6/18	LE 6/12	LE -2.25D	-0.75D	170
33	19	F	RE 6/6p		RE 6/6	RE -0.75D	0.00D	180
			LE 6/6p		LE 6/6	LE -0.50D	0.00D	10
34	23	F	RE 6/60	RE 6/9	RE 6/6	RE -1.75D	0.00D	
			LE fc 3m	LE 6/9	LE 6/6	LE -1.75D	-0.25D	180
35	18	F	RE 6/9	RE 6/6		RE -0.50D	0.00D	
			LE 6/9	LE 6/6		LE -0.50D	0.00D	
36	22	M	RE 6/9	RE 6/6		RE -0.75D	0.00D	
			LE 6/9	LE 6/6		LE -0.75D	0.00D	
37	20	F	RE 6/12P		RE 6/6	RE -1.00D	RE-0.50	75
			LE 6/12P		LE 6/6	LE-1.00D	LE-0.50	90
38	21	F	RE 6/12P		RE 6/6	RE -1.00D	RE-0.50	75
			LE 6/12P		LE 6/6	LE-1.00D	LE-0.50	90
39	20	M	RE 6/6P	RE 6/6		RE -0.25D	0.00D	
			LE 6/6P	LE 6/6		LE -0.25D	0.00D	
40	21	F	RE 6/60		RE 6/6	RE -2.00D	RE -1.00D	110
			LE 6/60		LE 6/6	LE -2.00D	LE -1.00D	85
41	22	F	RE Fc 3m		RE 6/6	RE -3.50D	RE -1.50D	10
			LE Fc 3m		LE 6/6	LE -3.00D	LE -0.00D	
42	19	M	RE 6/24		RE 6/6	RE -2.00D	RE -1.50D	180
			LE 6/24		LE 6/6	LE -2.50D	LE -1.75D	70
43	20	M	RE 6/9	RE 6/6		RE -0.75D	0.00D	
			LE 6/6	LE 6/6		LE -0.75D	0.00D	
44	20	F	RE 6/36		RE 6/6	RE -2.75D	RE-0.50D	180
			LE 6/36		LE 6/6	LE -3.00D	LE-0.50D	110
45	19	F	RE 6/12	RE 6/6		RE -1.50D	0.00D	
			LE 6/9	LE 6/6		LE -1.00D	0.00D	
46	19	F	RE 6/60		RE 6/6	RE -2.75D	RE-0.75	30
			LE 6/60		LE 6/6	LE -2.75D	LE-0.50	90
47	23	M	RE 6/18P		RE 6/6	RE -2.00D	0.00D	
			LE 6/18P		LE 6/6	LE -2.00D	0.00D	
48	27	M	RE 6/36		RE 6/6	RE -4.00D	0.00D	
			LE 6/36		LE 6/6	LE -4.00D	0.00D	
49	29	M	RE 6/18	RE 6/6		RE -0.50D	RE -0.75D	130
			LE 6/18	LE 6/6		LE -0.50D	LE -0.75D	65
50	30	M	RE 6/12	RE 6/6		RE -1.00D	0.00D	
			LE 6/12	LE 6/6		LE -1.00D	0.00D	
51	24	F	RE 6/9	RE 6/6		RE -0.75D	0.00D	
			LE 6/9	LE 6/6		LE -0.75D	0.00D	
52	26	M	RE 6/12p		RE 6/6	RE -0.75D	0.00D	
			LE 6/12p		LE 6/6	LE -0.75D	0.00D	
53	21	M	RE 6/9	RE 6/6		RE -0.50D	0.00D	
			LE 6/9	LE 6/6		LE -0.50D	0.00D	
54	23	M	RE 6/12		RE 6/6	RE -0.75D	0.00D	
			LE 6/12		LE 6/6	LE -0.75D	0.00D	
55	18	F	RE fc 3m		RE 6/6P	RE -2.25D	-1.25D	140
			LE Fc 3m		LE 6/6	LE -1.75D	-1.50D	25
56	24	F	RE 6/12	RE 6/6		RE -1.00D		
			LE 6/9	LE 6/6		LE -0.75D		
57	23	M	RE 6/18		RE 6/6	RE -1.50D		
			LE 6/18		LE 6/6	LE -1.50D		
58	26	M	RE 6/36		RE 6/6	RE -2.75D	RE -0.50D	85
			LE 6/36		LE 6/6	LE -2.75D	LE -0.50D	110
59	25	M	RE 6/24		RE 6/6	RE -2.50D	RE -0.75D	130
			LE 6/24		LE 6/6	LE -2.75D	LE -0.75D	65
60	29	M	RE 6/9P	RE 6/6		RE -0.75D		
			LE 6/9P	LE 6/6		LE -0.75D		

Table-1 provides the Pre Test result of selected myopia patients where SL as a serial no, patients age, Patients gender where 'f' means Female and 'm' means male. VA means Normal Vision power RE

Right eye, LE Left eye. PH is Pinhoon number of eyes. With glass vision power of both eyes. SPH- Sphere, CYL-cylinder of both eyes which is measure as diameter 'D'. Axis is measure as degree.

TABLE 2
POST EYE TEST REPORT OF MYOPIA PATIENTS

SL	Age	Gender	VA	PH	With glass	SPH	CYL	AXIS
1	20	F	RE 6/60		RE 6/6	RE -5.00D	-1.25D	180
			LE FC -3M		LE 6/6	LE -3.50D	-2.00D	165
2	23	M	RE 6/6		RE 6/6	RE -0.00D	0.00D	
			LE 6/6		LE 6/6	LE -0.00D	0.00D	
3	20	F	RE fc 2m		RE 6/12	RE -5.00D	-0.25D	10
			LE fc 2m		LE 6/9	LE -4.50D	-1.00D	160
4	19	F	RE 6/9	RE 6/6	RE 6/9	RE -0.50D	0.00D	10
			LE 6/9	LE 6/6	LE 6/9	LE -0.25D	-0.50D	110
5	21	M	RE 4/60		RE 6/6P	RE -2.25D	-0.50D	115
			LE 4/60		LE 6/6P	LE -2.50D	-0.25D	45
6	23	M	RE fc 3m		RE 6/6	RE -2.75D	-1.00D	80
			RE fc 4m		LE 6/6			
						LE -3.50D	-0.25D	60
7	20	M	RE 6/60		RE 6/6	RE -1.75D	-0.75D	5
			LE 6/60		LE 6/6	LE -2.75D	-0.50D	175
8	23	F	RE 6/12		RE 6/6	RE -0.25D	-0.75D	5
			LE 6/12		LE 6/6P	LE -0.50D	-0.25D	180
9	22	F	RE 5/60		RE 6/6	RE -3.50D	-4.00D	15
			LE 5/60		LE 6/6	LE -4.50D	-4.50D	150
10	21	M	RE 6/36		RE 6/9	RE +0.50D	-2.25D	90
			LE 6/24P		LE 6/9	LE +0.25D	-2.25D	60
11	22	M	RE 6/6			RE -1.25D	0.00D	
12	18	F	RE 6/60		RE 6/6P	RE -4.00D	-0.75D	160
			LE 6/60		LE 6/12	LE -6.00D	-1.50D	170
13	20	F	RE 6/6		RE -6/6	RE -0.00D	0.00D	
			LE 6/6		LE -6/6	LE -0.00D	0.00D	
14	21	M	RE 6/6			RE -0.00D	0.00D	
			LE 6/6			LE -0.00D	0.00D	
15	19	M	RE 6/6			RE 0.00D	0.00D	
			LE 6/6			LE 0.00D	0.00D	
16	20	F	RE 6/24P			RE -1.50D	-0.75D	20
						LE -1.25D	-0.25D	165
17	19	F	RE 6/6			RE 0.00D	0.00D	
			LE 6/6			LE 0.00D	0.00D	
18	19	F	RE 6/60		RE 6/6	RE -3.00D	-0.25D	175
			LE 6/36		LE 6/6	LE -1.00D	-0.75D	180
19	20	F	RE 6/60		RE 6/6	RE -3.00D	-0.25D	90
			LE 6/36		LE 6/6	LE -2.25D	-0.50D	15
20	20	F	RE 6/6		RE 6/6	RE +0.25D	1.00D	105
			LE 6/6		LE 6/6	LE +0.25D	0.00D	
21	21	F	RE fc 2m	RE 6/36	RE 6/6P	RE -6.00D	RE -0.50	170
			LE fc 3m	LE 6/60	LE 6/6P	LE -6.00D	LE -0.75	180
22	19	F	RE 6/36		RE 6/6	RE -1.25D	0.00D	
			LE 6/36		LE 6/6	LE -1.00D	-0.00D	15
23	19	F	RE 5/60		RE 6/6	RE -5.50D	-1.25D	180
			LE 5/60		LE 6/6	LE -5.25D	-1.75D	5
24	23	M	RE 6/6P		RE 6/6	RE -0.25D		
			LE 6/6P		LE 6/6	LE -0.25D		
25	20	F	RE 6/18P		RE 6/6	RE -3.00D	0	
			LE 6/18P		LE 6/6	LE -3.00D	0	
26	21	M	RE 6/24		RE 6/6	RE -3.00D	0	
			LE 6/24		LE 6/6	LE -3.00D	0	
27	23	M	RE 6/60		RE 6/9P	RE -2.00D	-0.50D	180
			LE 6/60		LE 6/9	LE -2.00D	-0.25D	180
28	22	F	RE 6/6			RE 0.00D	0.00D	15
			LE 6/6			LE 0.00D	0.00D	160
29	25	M	RE 6/36		RE 6/6	RE -2.25D	0.00D	
			LE 6/12P		LE 6/6	LE -2.25D	-0.00D	
30	19	F	RE 6/60	RE 6/9	RE 6/6	RE -1.50D	0.25D	180

SL	Age	Gender	VA	PH	With glass	SPH	CYL	AXIS
			LE 6/60	LE 6/9	LE 6/6	LE -1.50D	-0.25D	180
31	21	F	RE 6/60	RE 6/9	RE 6/6	RE -0.75D	-0.75D	180
			LE 6/60	LE 6/9	LE 6/6	LE -1.25D	-0.50D	170
32	20	F	RE 6/36		RE 6/9	RE -1.00D	0.00D	
			LE 6/60		LE 6/9P	LE -1.75D	-0.25D	170
33	19	F	RE 6/6p		RE 6/6	RE -0.25D		180
			LE 6/6p		LE 6/6	LE -0.25D		10
34	23	F	RE 6/60		RE 6/6	LE -1.75D	0.00D	
			LE Fe 3m		LE 6/6	RE-1.75D	-0.25D	180
35	18	F	RE 6/6					
			LE 6/6					
36	22	M	RE 6/6					
			LE 6/6					
37	20	F	RE 6/9	RE 6/6		-0.50D		
			LE 6/9	LE 6/6		-0.50D		
38	21	F	RE 6/9		RE 6/6	RE -0.25D		
			LE 6/9		LE 6/6	LE -0.25D		
39	20	M	RE 6/6					
			LE 6/6					
40	21	F	RE 6/60		RE 6/6	RE -2.00D	RE -1.00D	110
			LE 6/60		LE 6/6	LE -2.00D	LE -1.00D	85
41	22	F	RE fc 3m		RE 6/6	RE -3.50D	RE -1.50D	10
			LE fc 3m		LE 6/6	LE -3.00D	LE -1.00D	135
42	19	M	RE 6/24		RE 6/6	RE -2.00D	RE -1.50D	180
			LE 6/24		LE 6/6	LE -2.50D	LE -1.75D	70
43	20	M	RE 6/6		RE 6/6			
			LE 6/6		LE 6/6			
44	20	F	RE 6/36		RE 6/6	RE -2.75D	RE -0.50D	180
			LE 6/36		LE 6/6	LE -2.75D	LE -0.50D	110
45	19	F	RE 6/12		RE 6/6	RE -1.50D		
			LE 6/9		LE 6/6	LE -1.00D		
46	19	F	RE 6/60		RE 6/6	RE -2.75D	-0.75D	30
			LE 6/60		LE 6/6	LE -2.75D	-0.50D	90
47	23	M	RE 6/18P		RE 6/6	RE -2.00D		
			LE 6/18P		LE 6/6	LE -2.00D		
48	27	M	RE 6/36		RE 6/6	RE -4.00D		
			LE 6/36		LE 6/6	LE -4.00D		
49	29	M	RE 6/18		RE 6/6	-0.50D	-0.75D	130
			LE 6/18		LE 6/6	-0.50D	-0.75D	65
50	30	M	RE 6/12		RE 6/6	RE -1.00D		
			LE 6/12		LE 6/6	LE -1.00D		
51	24	F	RE 6/6					
			LE 6/6					
52	26	M	RE 6/12P		RE 6/6	RE -0.75D		
			LE 6/12P		LE 6/6	LE -0.75D		
53	21	M	RE 6/6					
			LE 6/6					
54	23	M	RE 6/12		RE 6/6	RE -0.75D		
			LE 6/12		LE 6/6	LE -0.75D		
55	18	F	RE Fe 3m	6/6p	RE 6/6	RE -2.25D	-1.25D	140
			LE Fe 3m	6/6p	LE 6/6	LE -1.25D	-1.50D	20
56	24	F	RE 6/9			RE -0.75D		
			LE 6/9			LE -0.50D		
57	23	M	RE 6/18		RE 6/6	RE -1.50D		
			LE 6/18		LE 6/6	LE -1.50D		
58	26	M	RE 6/36		RE 6/6	RE -2.75D	RE -0.50D	130
			LE 6/36		LE 6/6	LE -2.75D	LE -0.50D	65
59	25	M	RE 6/24		RE 6/6	RE -2.50D	RE -0.75D	85
			LE 6/24		LE 6/6	LE -2.50D	LE -0.75D	90
60	29	M	RE 6/9P		RE 6/6	RE -0.75D		
			LE 6/9P		LE 6/6	LE -0.75D		

SPH- Sphere, CYL-cylinder, VA-Vision, PH-Pinhood, LE-Left eye, RE-Right eye, CISS-Constructive interference in steady state

Table-2 provides the Post Test result of selected myopia patients which is collected on the same procedure like Pre-test after completing the therapy. Where SL as a serial no, patients

age, Patients gender where ‘f’ means Female and ‘m’ means male. Power RE Right eye, LE Left eye. PH is Pinhoon number of eyes. With glass vision power of both eyes. SPH- Sphere, CYL- cylinder of both eyes which is measure as diameter ‘D’. Axis is measure as degree and VA is normal power. All the box of the table which is empty means the value is 0.00 on that particular result.

TABLE 3
IMPROVEMENT PERCENTAGE RESULT

SL	Age	Gender	Category	Improvement (%)	Result
1	20	F	High Myopia	No improvement (Power is same)	NO
2	23	M	Low Myopia	10%(Power decrease)	100% RECOVERY (Cured)
3	20	F	High Myopia	No improvement (Power is same)	NO
4	19	F	Low Myopia	15%(power decrease)	100% RECOVERY(Cured)
5	21	M	High Myopia	No improvement (Power is same)	NO
6	23	M	High Myopia	No improvement (Power is same)	NO
7	20	M	High Myopia	No improvement (Power is same)	NO
8	23	F	Simple Myopia	25%(power decrease)	Slight changed
9	22	F	High Myopia	25%(power decrease)	Slight changed
10	21	M	High Myopia	No improvement (Power is same)	NO
11	22	M	Low Myopia	80%(power decrease)	Marked improvement
12	18	F	High Myopia	5%(power decrease)	Unchanged
13	20	F	Low Myopia	10%(power decrease)	100% RECOVERY(Cured)
14	21	M	Low Myopia	10%(power decrease)	100% RECOVERY(Cured)
15	19	M	Low Myopia	10%(power decrease)	100% RECOVERY(Cured)
16	20	F	High Myopia	5%(power decrease)	Unchanged
17	19	F	Low Myopia	15%(power decrease)	100% RECOVERY(Cured)
18	19	F	High Myopia	30%(power decrease)	Mild improvement
19	20	F	High Myopia	20%(power decrease)	Slight changed
20	20	F	Low Myopia	No improvement (Power is same)	NO
21	21	F	High Myopia	No improvement (Power is same)	NO
22	19	F	High Myopia	10%(power decrease)	Unchanged
23	19	F	High Myopia	No improvement (Power is same)	NO
24	23	M	Low Myopia	No improvement (Power is same)	NO
25	20	F	High Myopia	40%(power decrease)	Mild improvement
26	21	M	High Myopia	40%(power decrease)	Mild improvement
27	23	M	Simple Myopia	20%(power decrease)	Slight changed
28	22	F	Low Myopia	15%(power decrease)	100% RECOVERY(Cured)
29	25	M	High Myopia	35%(power decrease)	Mild improvement
30	19	F	High Myopia	10%(power decrease)	Unchanged
31	21	F	High Myopia	No improvement (Power is same)	NO
32	20	F	High Myopia	30%(power decrease)	Mild improvement
33	19	F	Low Myopia	15%(power decrease)	Unchanged
34	23	F	High Myopia	No improvement (Power is same)	NO
35	18	F	Low Myopia	20%(power decrease)	100% RECOVERY(Cured)
36	22	M	Low Myopia	30%(power decrease)	100% RECOVERY(Cured)
37	20	F	Low Myopia	20%(power decrease)	Slight changed
38	21	F	Low Myopia	20%(power decrease)	Slight changed
39	20	M	Low Myopia	10%(power decrease)	100% RECOVERY(Cured)
40	21	F	High Myopia	No improvement (Power is same)	NO
41	22	F	High Myopia	No improvement (Power is same)	NO
42	19	M	Simple Myopia	No improvement (Power is same)	NO
43	20	M	Low Myopia	30%(power decrease)	100% RECOVERY(Cured)
44	20	F	High Myopia	5%(power decrease)	Unchanged
45	19	F	Low Myopia	No improvement (Power is same)	NO
46	19	F	High Myopia	No improvement (Power is same)	NO
47	23	M	Simple Myopia	No improvement (Power is same)	NO
48	27	M	High Myopia	No improvement (Power is same)	NO
49	29	M	Simple Myopia	No improvement (Power is same)	NO
50	30	M	Low Myopia	No improvement (Power is same)	NO
51	24	F	Low Myopia	30%(power decrease)	100% RECOVERY(Cured)
52	26	M	Low Myopia	No improvement (Power is same)	NO
53	21	M	Low Myopia	20%(power decrease)	100% RECOVERY(Cured)
54	23	M	Low Myopia	No improvement (Power is same)	NO
55	18	F	High Myopia	No improvement (Power is same)	NO

SL	Age	Gender	Category	Improvement (%)	Result
56	24	F	Low Myopia	10%(power decrease)	Unchanged
57	23	M	Simple Myopia	No improvement (Power is same)	NO
58	26	M	High Myopia	No improvement (Power is same)	NO
59	25	M	Simple Myopia	5%(power decrease)	Unchanged
60	29	M	Low Myopia	No improvement (Power is same)	NO

Table-3 provided improvement percentage Result in according with the subjective and objective analysis of both pre and post test result of myopia patients of the study. Here we mention Serial no SL, Age, Gender, Category of the patients, Improvement percentage and result according to subjective and objective analysis.

3.1 Assessments of Overall Effect of Therapy

3.1.1 Subjective assessment:

- Total 100% improvement and relief in signs with symptoms and reduce SPH & CYL with no recurrence during follow up study were considered as cured.
- Marked improvement: 76% to 99% improvement in signs and symptoms with SPH & CYL reduction was recorded as marked improvement.
- Moderate improvement: 51-75% improvement in signs and symptoms with SPH & CYL reduction in dioptric power was considered as moderate improvement.
- Mild improvement: 26-50% improvement in signs and symptoms with SPH & CYL reduction in dioptric power was considered as mild improvement.
- Slight changed: Up 16% to 25% reduction in signs and symptoms with SPH & CYL reduction in dioptric power was noted as Slight changed.
- Unchanged: Up 5% to 15% reduction in signs and symptoms with SPH & CYL reduction in dioptric power was noted as unchanged.
- Totally No improvement: Unchanged of SPH & CYL dioptric power or pre and post test SPH & CYL dioptric power was same.

3.1.2 Objective assessment:

SPH +/- 0.25D Reduce = 5%; CYL +/- 0.25D Reduce = 5%; Between SPH & CYL the lower % will be match; For Example SPH 30% CYL 10% & result will be 10%.; If the PRE test has some power & in POST test power is totally 0.00 than the improvement result will be 100%.; If there is no power/0.00 in the CYL of PRE Test than no need to match between SPH & CYL and for example SPH 10% CYL 0% & result will be 10%.

FIGURE 1

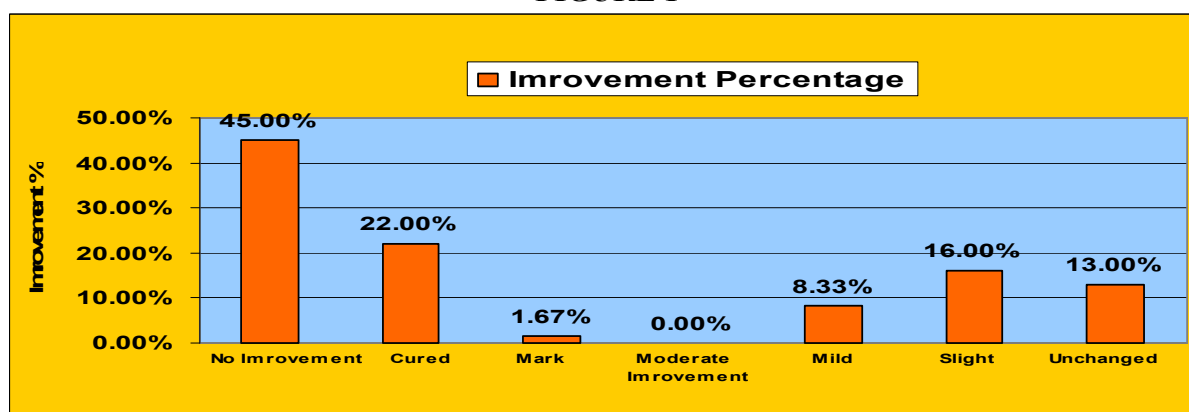


Figure 1 indicates that the rate of no improvement is 45%, Cured 22%, Mark improvement 1.67%, Moderate improvement 0%, Mild improvement 8.33%, Slight improvement 16%, Unchanged 13%. Which is statistically significant at P < .05..

FIGURE 2

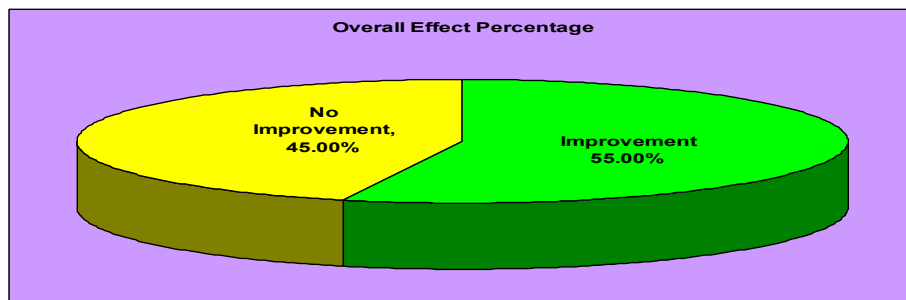


Figure 2 indicates that the overall effect percentage of myopia patient of this study in this graph. According to the graph we show the improvement percentage is higher than No improvement. Total improvement is 55% patients, No improvement 45% which is statistically significant at $P < .05$.

FIGURE 3

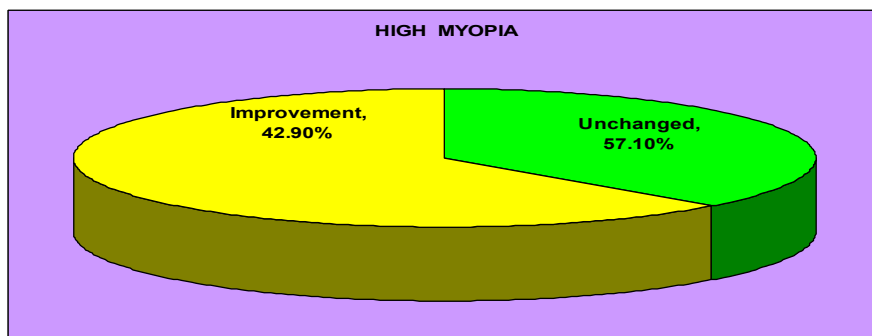


Figure 3 indicates that the 45% patient of total subject was in High Myopia group. With the analysis criteria we found that the improvement rate was less than Not-improvement rate. Total 42.90% patients get improvement and 57.10% remain unchanged of total patient of this group in different percentage according to their SPH & CYL dioptric power. The result is statistically significant at $P < .05$.

FIGURE 4

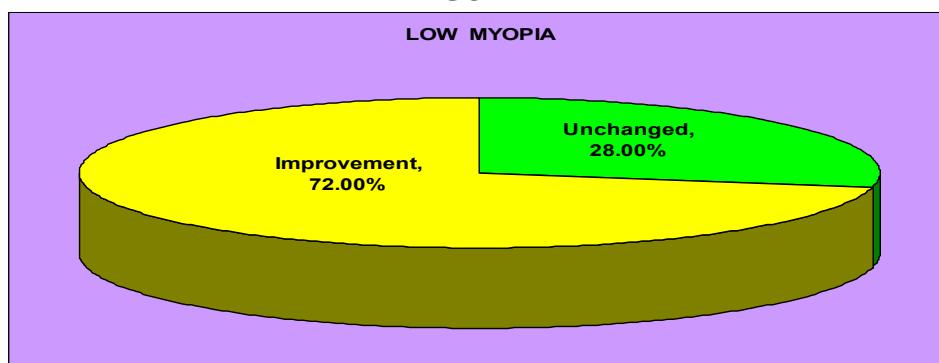


Figure 4 reveals that the 42% patient of total subject was in Low Myopia group. With the analysis criteria we found that the improvement rate was higher than Not-improvement rate. Total 72.00% patients get improvement and 28.00% remain unchanged of total patient of this group in different percentage according to their SPH & CYL dioptric power. The result is statistically not significant at $P < .05$.

FIGURE 5

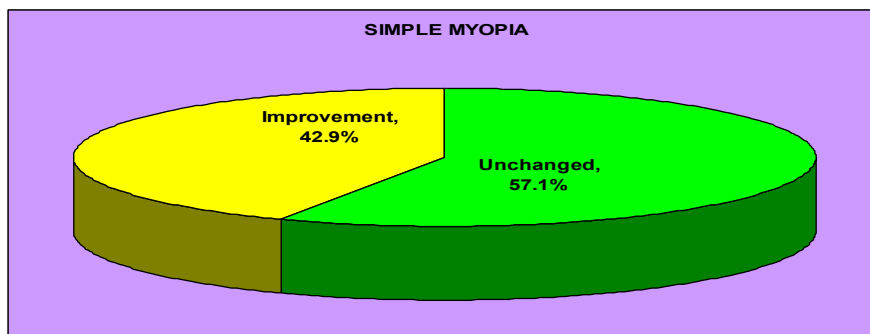


Figure 5 reveals that the 12% patient of total subject was in Simple Myopia group. With the analysis criteria we found that the improvement rate was less than Not-improvement rate. Total 42.10% patients get improvement and 57.10% remain unchanged of total patient of this group in different percentage according to their SPH & CYL dioptric power. The result is statistically significant at $P < .01$.

4. DISCUSSION

On the study we try to find the role of physical exercises in analyzing the effect of myopia disease by experimental analysis of Myopia patients. With our limitation we try our best to get the better result. It was very much challenging to manage myopia patient and take them a proper discipline in a same routine. After sampling we make some rules and routine for provide proper treatment regular basis. We assist our patient by both Pre and Post eye test report. We analysis our patients result both subjectively and objectively. After analyzing the result we found improvement percentage that the rate of No improvement is 45%, Cured 22%, Mark improvement 1.67%, Moderate improvement 0%, Mild improvement 8.33%, Slight improvement 10%, Unchanged 13%. Which is statistically significant at $P < .05$. On the basis of overall effect we found the improvement percentage is higher than No improvement. Total improvement is 55% patients, No improvement 45% which is statistically significant at $P < .05$. For further getting specific result we categorized our patients and we found High Myopia group result; with the analysis criteria we found that the improvement rate was less than Not-improvement rate. Total 42.90% patients get improvement and 57.10% remain unchanged of total patient of this group in different percentage according to their SPH & CYL dioptric power. The result is statistically significant at $P < .05$. In Low Myopia group we found that the improvement rate was higher than Not-improvement rate. Total 72.00% patients get improvement and 28.00% remain unchanged of total patient of this group in different percentage according to their SPH & CYL dioptric power. The result is statistically not significant at $P < .05$. In Simple Myopia group we found that the improvement rate was less than Not-improvement rate. Total 42.10% patients get improvement and 57.10% remain unchanged of total patient of this group in different percentage according to their SPH & CYL dioptric power. The result is statistically significant at $P < .01$.

5. CONCLUSIONS

The study mainly focused to find the role of physical exercises in analyzing the effect of myopia disease by experimental analysis of Myopia patients, reason behinds such kinds of problems in Myopia patients and also suggested different physical exercises that will become more beneficial to overcome this kind of problem. Myopia has different stage among them low myopia is very fast stage. We should diagnosis the problems on this fast stage and take proper treatment. There are many research proved that selected yoga based therapy in regular improve eyesight; in this study we also get some better result of myopia patient. At the same time myopia

is usually not a dangerous or very serious condition to treat. Normally it won't result in serious complication and can be treated effectively with corrective eyeglasses, contact lenses or surgery. If you have any disease that puts your vision at risk, visit your doctor if you notice symptoms worsening, always report to your doctor any vision related problems, including astigmatism, cloudy vision, burning, and headaches and floating spots.

6. RECOMMENDATIONS

After completing this study we find out that this therapy is much beneficial for Low myopia group. The rate of improvement of High myopia and simple myopia is much poor but we suggest that if at least three months of nonstop campaigning can be organized for therapy with a proper diet chart, discipline, and two times therapy per day, then we are very much hopeful to increase the improvement rate of this patients. We also suggest that the patient who has other serious problems in the eyes should avoid this therapy. A proper set of exercises is needed for the patient otherwise the patient can feel headache and pain in the eyes, on that situation we highly suggested stopping the therapy and do Yoga Nidra asana it relaxes the eyes immediately. As we found much better result in Low myopia group so our suggestion is to everyone should practice the therapy regularly from a very early stage of myopia symptoms. In one month follow-up time, we didn't find any side effects of eyes for the therapy. Finally, we recommend the patients who take pharm logical treatment should continue and get suggestions from eye specialists properly.

7. SIGNIFICANCE

This study will be significant works if myopia patient's effect fully implements suggested specific kinds of physical exercises in their life. Our society will become more benefited from this research work. This research work may plays a very important role to improve the vision of young persons.

8. INTEREST OF CONFLICT

There is no interest of conflict.

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