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LEISURE ACTIVITY AND LIFE SATISFACTION AMONG COLLEGE TEACHERS

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ABSTRACT

In order to assess the relationship between leisure activity and life satisfaction among one hundred and seventy (85 male & 85 female) teachers from different colleges of Rani Durgawati University, Jabalpur, Madhya Pradesh ,India. The age of teachers ranged between 23 to 63 years. A questionnaire consisting of socio-demographic variables, degree of life satisfaction, health status and frequency of participation in different leisure activities was administered on all the subjects. Zero order correlations between degree of life satisfaction and leisure activity participation of male teachers indicated that activities like “perform volunteer work”; “attend cultural events”; “holiday trips”; and “gardening” were significantly correlated. In case of female teachers “perform volunteer work”; “engage in artistic and musical activities”; “perform handicraft and home repairs”; “participate in sports” and “attend sports events” were significantly correlated with life satisfaction. Partial correlations (controlling the age & medical condition) no change in activities was observed for male teachers. In female participants “attend cinema”; and “attending classical\ gazal concerts” were added. In female teachers, surprisingly “visiting neighbor” was negatively correlated with life satisfaction.

Keywords: Leisure, Life Satisfaction, College Teacher, Male, Female, Happiness

1. INTRODUCTION

Leisure activities means that individuals willingly take up activities that could benefit their mental, physical, and social health during free time. In such activities, individuals could be satisfied, happy, and self-enrichment in a leisure state **(Zhan, 2001).**

According to **Mannell and Kleiber (1997)** leisure is both objective and subjective. It is objective when participating one or multiple leisure activities, while subjective leisure means individual obtaining inner satisfaction though activities. While examining the mediating effect of leisure activities between social relationship, physical health and psychological wellbeing.

Kleiber & Nimrod (2009), define leisure activities as preferred and enjoyable activities participated in during one's free time and characterized as representing freedom and providing intrinsic satisfaction. Individuals can recover from stress and restore social and physical resources **(Pressman et al.,2009)** through leisure activities. Leisure activities with others may provide social support and, in turn, mediate the stress health relationship **(Coleman & Iso-Ahola, 1993),** enrich meaning of life **(Carruthers & Hood, 2004),** as well as helping older adults adapt to potential restrictions of chronic conditions (Hutchinson & Nimrod, 2012) and overcome negative life events (e.g., losing a loved one) **(Janke, Nimrod, & Kleiber,2008).** Because engaging in leisure activities may affect different aspects of well-being **(Gautam, Saito, & Kai,2007). Paillard-Borg, Wang,Winblad, and Fratiglioni (2009)** examined five types of leisure activities in older adults- mental, social, physical, productive, and recreational—to assess how participation affects health status. They found that mental activities (e.g., writing, reading) were not only the most popular type of leisure activities, but also enhanced well-being the most.

Silverstein and Parker (2002) divided 15 leisure activities into six domains -culture entertainment, productive personal growth, outdoor physical, recreation expressive, friendship, and formal group. They found that engaging in friendship-type leisure activities (e.g., visiting friends) resulted in the highest quality of life in older Swedish adults. Studies on social and leisure activities and well-being in older adults, by **Adam et.al. (2011)** found that informal social activity benefited well-being the most.

Bouchard (2006) stated that leisure-time physical activity includes commuting, non-exercise, exercise and sports. Commuting physical activity may be done simply as a means of travel or for other reasons such as exercise. Non-exercise physical activity is done for other purposes than conditioning exercise or fitness itself. For example, snow shovelling, heavy gardening or wood chopping increase energy expenditure but the ultimate goal is not to enhance fitness. Exercise is a form of leisure-time physical activity that is performed repeatedly over a longer period to maintain or enhance fitness.

The results of study to examine the interest for and participation in cultural leisure activities for undergraduate students enrolled in leisure studies courses conducted by **Auger et.al., 1999)** indicated that the most favourite leisure time activities are sports, socializing with family and friends, and watching T.V. and movies. Very few respondents mentioned cultural leisure activities as favorites. Female respondents read magazines more than males. Usually they read fashion magazines. Half of the respondents "never" or "rarely" read books other than those required for school. Two-thirds claimed that they "don't have enough time" but one-third stated that they are "not interested" in reading more. About 95% of respondents listen to music "often" but virtually no one listens to classical music "most often".

Indians are like any other people in the world. Not all people in India spend their leisure time the same way. There was a time before television was introduced when there were more social activities like clubs where people met and played and there were lots of sports activities.

Girls and women devoted time to learning arts and crafts, especially with throw-away items. They also learnt cooking, cleaning, sewing, embroidering, gardening. Home science was supposed to be the 'in' thing. The upper class men played billiards/snooker and the middle-class played football or cricket on common playgrounds.

Now the scene is different. Children are extremely busy with academics (the Indian curriculum is quite taxing), and since extra-curricular activities give them 'points' for university, they try to learn a musical instrument, go in for some dance/language/personality improvement/yoga classes. Most women too are working. So, with this double income, the quality of life and leisure has changed. There are clubs for the privileged, membership of which is not easy. The average middle class is able to afford tourism within the country and also fly overseas for holidays. Weekend shopping in malls, eating out in restaurants, going to the cinemas and generally having fun or unwinding with friends is how an average Indian spends his/her leisure time nowadays.

Actually in India when the people are free they go to see some historical places or talking with their relationers. In leisure time people are discussing to each other and share their problems and happiness.

People in India spend their free time doing exactly what people elsewhere do- hanging out with friends, watching TV, going shopping, going to a bar, reading a book, taking pottery classes, pursuing hobbies etc. They are warm people so spending time with the family is always a big deal. Their are traditional hobbies like Indian classical dance, yoga, spirituality, traditional Indian art etc. which a lot of people take time out for.

In Indian context, hobby may be considered as a leisure activity. India has too vast and diverse of a history and culture to easily find common hobby trends though that may be changing among the middle class.

Indian Leisure & Entertainment Trends 2008-09 survey states that, Leisure is not new to the country. Music, dance, theatre, poetry have entertained people.

Religion plays a key role in the life of an Indian. Rituals, worship and other religious activities are very prominent in an individual's daily life; this is evident from the fact that close to 7 out of 10 individuals consider 'visits to temples / places of worship' as an activity that they would pursue in their leisure time. 60% have also engaged in the activity as part of their leisure repertoire, in the last one year Interestingly, this is also an activity that does not seem to be on the wane; it is in the consideration set of leisure activities for nearly as many younger people as it is among the older age group.

Gaming (playing games on computers/mobiles) as an activity is catching up in India. Though the proportion of those who have engaged in some form of gaming is still restricted, gaming as a pastime has spread across town classes and socioeconomic strata. The active gamers - those who consider gaming to be among their top 5 leisure activities - are young expectedly (more than 80% are below 30 years of age) and mostly male. But active female gamers also form a significant segment at 24%.

Misra and Singh (2015) conducted a study on Pattern of leisure-lifestyles among Indian school adolescents: Contextual influences and implications for emerging health concerns that participants spent more time in sedentary and religious activities than they did in sports and games, cultural, and community service activities, except cycling, racing, and walking. More than half of the participants reported sedentary involvement (i.e. bike riding, mobile chatting, Internet, fast music, videogames, watching TV/cinema). About one-third of the participants reported engagement in cultural activities, different types of sports, games, or other physical

activities. Only one-fifth of them were engaged in community or professional activities (i.e. scout/NCC, job work). However, walking, cycling, racing, and reading newspapers were also reported as salient activities during leisure time. Interestingly religious behaviors were commonly practiced by the participants.

This findings reflect segregation and sharing both in features of leisure time use among participants from rural, urban, and metro residential settings. Urban adolescents' pattern of leisure-lifestyles reflects transitional state of choices with similarity in the extent of cultural participation, doing job work, scout/NCC participation with rural adolescents but not different from metro participants in listening to fast music, cycling, playing football or hockey, cricket, kho-kho/kabaddi, and job work. Rural adolescent participants' pattern of leisure indicates transgression of traditional boundaries of leisure by urbanization and industrialization. Despite similarity in practice of certain sedentary leisure with urban segment of adolescents, metro adolescent participants seem to increase their awareness for a healthy leisure time use as reflected in the findings related to greater practice of racing, cultural participation, and scout/NCC health among them. It seems efforts by different governmental and non-governmental agencies through different channels of media are inducing a positive impetus.

The purpose of the study is to determine the effect of leisure activities on happiness and which leisure activity increases happiness, among college teachers affiliated with Rani Durgawati University, Jabalpur, Madhya Pradesh, India.

2. METHODOLOGY

2.1 Sample:

One hundred and seventy (85 males & 85 females) college teachers who volunteered to participate in the study, were selected.. The age of subjects ranged was from 23 to 63 years.

2.2 Selection of Variables

The age, sex, marriage, education, income (gross amount of salary) income are socio-demographic variables, were administered upon male and female respondants, The twenty leisure activities related to India population were also selected for the purpose of study.

2.3 Administration of Questionnaire

To gather the desirable data a self report questionnaire consisting of 1. one's present satisfaction with life, measured with single question "how satisfied are you at present with your life as whole" rating his\her life satisfaction on a 10 point scale in which 0 means totally unhappy, and 10 means totally happy. 2. Frequency of one's participation in Leisure activities. In total 21 activities popular with Indian population were included participants were asked "how frequently do you participate in the following activities: daily; at least once a week ;at least once a month ;less often; never.3. Health measured as the total number of doctor visits in the past 3 months and 4.

2.4 Statistical Analysis

The Zero order correlation were computed to find out to what extent the happiness goes together with leisure activities, partial correlation were computed. (by controlling the effect of age and health on life satisfaction and leisure activities).

3. RESULTS AND DISCUSSION

To find out extent of the happiness goes together with leisure activities, partial correlation were computed. To check whether these correlation are spurious, the correlation for male and female are presented in table-1.

TABLE-1
CORRELATION BETWEEN LEISURE ACTIVITIES AND LIFE SATISFACTION AMONG MALE AND FEMALE COLLEGE TEACHERS

S No.	Activity	r_m	r_f	pr_m	Pr_f
		N 85	N 85	N 85	N 85
1	Go out to eat or drink	.102	.037	.092	.048
2	Visit neighbour	.019	-.148	.038	-.200*
3	Visit family members	.154	.174	.175	.101
4	Play card or board games	.154	.148	.166	.139
5	Participate in local politics	.024	.156	.028	.063
6	Perform volunteer work	.250*	.279**	.242*	.265*
7	Attend prayer or other religions event	.036	.113	.041	.110
8	Watch television, videos	.004	-.167	.004	-.150
9	Read magazines or books	.101	.202	.105	.164
10	Engage in artistic and musical activities	.081	.276*	.069	.212*
11	Performed handicraft and home repairs	-.041	.289**	-.036	.228*
12	Participates in sports	.097	.249*	.087	.239*
13	Attend sports event	.154	.230*	.143	.251*
14	Attend cinema	-.005	.180	.006	.217*
15	Attend cultural events	.218*	.177	.243*	.178
16	Holiday trips	.228*	.121	.229*	.130
17	Attend community events	.180	.114	.184	.121
18	Attend social gathering	.194	.187	.216*	.197
19	Gardening:	.224*	.190	.230*	.147
20	Vehicle servicing	.186	.174	.196	.199
21	Attend classical/gazals concerts or theatre	.183	.199	.183	.204*

*p<.05

In case of male teachers just four activities – perform volunteer work ; attend cultural events; Holiday trips and gardening; were significantly correlated with life satisfaction "Perform volunteer work"; "Engage in artistic and musical activities"; "Performed handicraft and home repairs"; "Participates in sports" and "attend sports event" significantly correlated with life satisfaction for female teachers.

The partial correlations (controlling the age and medical condition) indicate that leisure activities significantly correlating life satisfaction are the same for male teachers where as in case of female teachers "attending cinema"; "attending classical/gazals concerts" were the additional activities correlated significantly with life satisfaction. Surprisingly the partial correlation between "visiting neighbors" and life satisfaction is negatively correlated. "Performing volunteer work", "attending cultural events", "holiday trips", "attending social gathering" and "gardening" are the leisure activities that have significant effect on life satisfaction of male teachers where as performing volunteer work, engage in artistic and musical activities, performing handicraft and home repairs participating in sports, attending sports events, attending cinema and attending

classical \ gazals concerts or theatre has significant effect on life satisfaction of female teachers visiting neighbors also emerged as significant leisure activities for female teachers but is negatively correlated with life satisfaction.

4. CONCLUSIONS

1. Leisure activities significantly correlating life satisfaction are the same for male teachers
2. Female teachers "perform volunteer work"; "engage in artistic and musical activities"; "perform handicraft and home repairs"; "participate in sports" and "attend sports events" were significantly correlated with life satisfaction.
3. No change in activities was observed for male teachers.
4. Female participants "attend cinema"; and "attending classical\ gazal concerts" were added. surprisingly "visiting neighbor" was negatively correlated with life satisfaction among female teachers,

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COMPARATIVE STUDY OF COORDINATION ABILITY OF MALE CRICKETERS OF DIFFERENT PARTICIPATION LEVELS

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ABSTRACT

. The purpose of the present study was to investigate the physical characteristics and co-ordination ability of male cricketers. A total of Sixty four male cricket players of Inter-collegiate, inter-university, State school and Senior national school levels were selected for the purpose of study The Weight, Height, Coordinative variables (Speed, General body coordination, and agility) for male cricketers were selected for the purpose of study. The test of height . weight and coordination ability were administrated physically on all the subjects, which were generally carried out by anthropometric rod, measuring tape and weighing machine, for the analysis purpose. For co-coordinative ability was measured by the Scott obstacle Race Test. To assess the physical characteristics aand coordination ability of male cricketers at different participation levels, the means, standard deviations, and F-ratios were computed. The level of significance was set at. .05 level. The results of the study revealed that National Schools level male cricketers were taller and heavier than their counter parts. State school level male cricketers were found to more coordination ability than their counter parts. Statistically significant differences in weight and coordination ability were observed among male cricketers at different levels of participation.

Key words: Males, Weight, Height, Cricket players, coordination ability, participation levels

1. INTRODUCTION

Motor coordination could also be a locality and parcel of action regulation and is thence closely coupled with the processes of regulation of psychological feature, psychic motive, drive etc. associate degreed movement execution aspects of an action Kansal (1996). Coordination may even be outlined as " the facility of the performing artist to integrate types of body movements into specific pattern Singh (1991). Various research worker have conducted considerable analysis in Republic of India and abroad , that were the direct or indirect associated with with this investigation. Sharma (2015) disclosed that statistically important distinction existed among male soccer players in their height and Coordination ability. Similarity was ascertained in their weight. . Hebbelink (1985) found that male Olympic athletes in seven sports winners were heavier and taller than most alternative sportsmen. Juras, & Raczek (1998) all over that spatial orientation was a particular coordination talent which it possessed a posh inner structure, additionally to exactitude and speed, that area unit its most important aspects.

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Considering the actual fact that exertion follow has pointed to the actual fact that the relations between anthropometrical characteristics and coordination skills dissent throughout varied growth periods, it's a necessity to scientifically prove that there area unit important relations between anthropometrical characteristics and coordination skills.

Human physique growth and performance are in necessary field throughout this regards. There appear to be varied unchanging characteristics among the body . as an example, if the game of Basket ball wants the players to be tall than people who area unit shorter cannot be created additional tall beneath traditional conditions. The purpose of the current study was to analyze the physical characteristics and co-ordination ability of male cricketers.

The purpose of the present study was to investigate the physical characteristics and co-ordination ability of male cricketers.

2.METHODOLOGY

2.1 Selection of Subjects:

A total of Sixty four male cricket players of Inter-collegiate, inter-university, State school and Senior national school levels were selected for the purpose of study .The sample consisted of sixteen male cricket players from each participation level. The mean age and SD of male cricketers were 23.966 ± 4.45 respectively.

2.2 Selection of Variables:

The Weight, Height, Coordinative variables (Speed, General body coordination, and agility) for male cricketers were selected for the purpose of study.

2.3 Instruments:

The test of height . weight and coordination ability were administrated physically on all the subjects, which were generally carried out by anthropometric rod, measuring tape and weighing machine, for the analysis purpose. For co-coordinative ability was measured by the Scott obstacle Race Test.

2.4 Statistical analysis

To assess the physical characteristics aand coordination ability of male cricketers at different participation levels, the means, standard deviations, and F-ratios were computed. The level of significance was set at. .05 level.

3. RESULTS AND DISCUSSION.

In order to find out the significance of differences among male football player teams, the means, standard deviations, and F-ratios were computed and data pertaining to this, has been presented in Table 1 to 3.

TABLE 1
DESCRIPTIVE STATISTICS OF PHYSICAL CHARACTERISTICS AND COORDINATION ABILITY OF MALE CRICKETERS OF DIFFERENT LEVELS

Variables	Intercollegiate M±SD	Inter-university M±SD	State M±SD	National M±SD
Height	1.64±3.65	1.63±3.97	1.65±2.56	1.68±2.05
Weight	54.12±1.68	55.15±2.3	53.54±2.36	56.36±4.13
Coordination Test	19.98±2.01	18.05±4.01	17.85±3.01	20.19±2.98

The mean scores of various components of Physical characteristics, and coordination ability of male Cricketers have been presented in above table.

TABLE 2
ANALYSIS OF VARIANCE FOR PHYSICAL CHARACTERISTICS AND COORDINATION ABILITY OF MALE CRICKETERS OF DIFFERENT LEVELS

Variables	Source of Variance	Sum of Squares	df	Mean Square	F-ratio
Height	Between Groups	104.91	3	34.97	1.50
	Within Group	1398.59	60	23.31	
Weight	Between Groups	427.89	3	142.63	3.91*
	Within Groups	2188.27	60	36.47	
Coordination Ability	Between Groups	98.97	3	32..99	5.44*
	Within Groups	363.56	60	6.06	

*Significant at .05 level
F.05(3,60)=2.76

It is clearly evident from Table 2, that there were significant differences among the male cricketers at different participation levels in their weight and coordination ability variables, as

the obtained F-values of 3.91, and 5.44 respectively were higher than the require value of F.05 (3,60)=2.76. But they did not differ significantly in their height variable, as the obtained F-value of 1.50 was less than the require value to be significant.

TABLE 3
SIGNIFICANCE OF DIFFERENCES BETWEEN ORDERED PAIRED MEANS OF WEIGHT AND COORDINATION ABILITY OF MALE CRICKETERS OF DIFFERENT LEVELS

Variables	Inter-collegiate	Inter-university	State Schools	National Schools	Paired Mean Difference	C.I.
Weight	54.12	55.15	-	-	1.03	3.51
	54.12	-	53.64	-	0.64	
	54.12	-	-	56.36	2.24	
	-	55.15	53.64	-	1.51	
	-	55.15	-	56.36	1.21	
	-	-	53.64	56.36	2.72	
Coordination Ability	19.98	18.05	-	-	1.93	1.99
	19.98	-	17.85	-	2.13*	
	19.98	-	-	20.19	0.21	
	-	18.05	17.85	-	1.77	
	-	18.05	-	20.19	2.14*	
	-	-	17.85	20.19	2.34*	

*Significant at .05 level

It is quite obvious from Table 3, that there were no significant differences in the weight between the ordered paired means of intercollegiate-Inter-university followed by state and national schools level male cricketers; between inter-university -state schools followed by national schools and between state schools -national schools male cricketers, as the obtained mean differences of 2.24, 0.64, 1.01, 2.72, 1.21 and 1.51 respectively were lesser than the confidence interval of 3.51.

In case of paired means on coordination ability , there were significant differences between intercollegiate and state schools; between inter-university -national schools and between state schools- national schools level male cricketers, as the obtained mean differences of 2.13, 2.14 and 2.34 respectively were higher than the confidence interval of 1.99. But the male cricketers did not differ significantly between their participation levels.

4.CONCLUSIONS

1. National Schools level male cricketers were taller and heavier than their counter parts.
2. State school level male cricketers were found to more coordination ability than their counter parts.
3. Statistically significant differences were observed among male cricketers at different levels of participation.

5. SUGGESTION

1. This investigation should be conducted on more sample of male Cricketers
2. The study can be replicated on female cricketer of different levels.

3. It is recommended that a proper training program must be prepared and implemented to develop the coordination ability of male cricketers players.

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AEROBIC AND ANAEROBIC PHYSIOLOGICAL PROFILES IN COLLEGIATE ATHLETES

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ABSTRACT

Recent developments in the physical fitness and training assessments of athletes are premised on the reality that the athlete is confronted with competition-like criteria. Considering physical fitness, it is necessary, because requirements are varied, to examine thoroughly the abilities that have an effect on the development of sports. This paper will aim to describe the physical and physiological comparison of athletes in aerobic and anaerobic evaluation specific to the sports consisting of the individual, team, and combat personalities. The study was carried out with a total of 120 (n=120) players comprised of 40 (n=40) players in each category of individual, team, and combat sports. The recorded data is statistically analyzed using analysis of variance (ANOVA) with a p-value less than 0.05 significant level. Results that are found to be significant are further processed using the Tuckey HSD post hoc test to find the significant difference among the groups. The obtained results show that there is a significant difference between the groups with regards to the VO2 max and lactate threshold.

Keywords: Lactate threshold, VO2 max, Recovery Heart Rate, aerobics, physiological profile.

1. INTRODUCTION

The use of scientific ideas in sports and exercise has grown dramatically over the years. Science's application to sports is particularly obvious in the subject of physiology; in fact, sports professionals are quick to recognize the necessity of learning fundamental physiological information that might yield superior results. For so many decades, exercise physiology has been a respectable discipline in its own right. Exercise has traditionally been used to agitate physiological systems in order to see how they responded to stress. Athletic trainers have also discovered the limits of human physiological reactions as well as the elements that restrict performance in a variety of situations **(Ghosh, 2004).**

Apart from technique, tactics, and skill, physical performance in various competitive sports events is largely dependent on the integrated status of the individual's different physiological mechanisms, i.e. the state of health and capacity for physiological responses to meet the challenges of the competitive situation **(Saltin and Astrand, 1967).** The enhancement of these reactions via training is required for optimal performance. As a result, the primary goal of physiological research is to properly analyze and monitor the training plan. Under optimal circumstances, requirements of sport have a very strong connection with the physical stamina of the athlete that can be classified as 1) Endurance- capacity to carry out the prolonged exercise, 2) exercise at high intensity for prolonged time, 3) sprinting capability, and 4) capacity to generate more output power in a single action. The most essential physiological component for excellent marathon performance is having a high aerobic capacity, often known as VO_2 max. In long-distance endurance events, aerobic metabolism takes precedence, and maximal oxygen uptake (VO_2 max), also known as aerobic capacity, becomes one of the most important deciding variables in elevated performance in sports. VO_2 max refers to a person's cardiorespiratory capability in terms of O_2 intake, distribution, and use **(Åstrand and Saltin, 1961; Conley and Krahenbuhl, 1980; Foster, 1983).** One of the most physiologically relevant and often evaluated metrics in the physiological evaluation of well-trained athletes may be maximum oxygen intake. Another important parameter is the lactate threshold and is created to identify the point at which metabolic acidosis and the resulting alterations in lung gas exchange occur during exercise **(Wasserman et al., 1973).** It means, there is a nonlinear steep increase in ventilation during incremental exercise at a certain intensity, known as the ventilatory anaerobic threshold (Hollman, 1959), a nonlinear increase in blood lactate concentration, known as lactate threshold, a nonlinear increase in CO2 production, an increase in end-tidal oxygen, an increase in CO_2 production, and in arterial lactate level. Numerous researchers with almost the same aim to establish the aerobic and anaerobic transition point, of an exercising human, employ various techniques. Synthesis of lactate in the muscle rises arcuated with escalating workload or even with percentage use of VO2 max.

Another important physiological parameter used to analyze aerobic and anaerobic is the lactate threshold. The Lactate principle is regarded to be a basic value for any physical therapist, along with its basic constructs of lactate metabolism, production, elimination, threshold, and stable state. The aerobic performance of athletes along with clinical research is usually measured using graduated exercise tests. During this stepwise workout, blood lactate is monitored and the workload is traced. The capacity to do the whole-body muscular activity at medium to high frequencies for long periods of time is a significant component of cardiorespiratory fitness evaluated. According to **Pate and Kriska (1984),** maximum oxygen uptake and lactate threshold (LT), as well as oxygen cost of exercise and economy, are assessed for aerobic endurance performance. A person's lactate threshold is defined as the point at which blood lactate levels

abruptly rise as shown in Fig 1. Lactate development or presence in the muscle and its clearance from the muscle are the net results of lactate production or appearance in the muscle, according to several researchers **(Chirtel et al., 1984; Green et al., 1983.** Different sophisticated devices are available in the market to measure blood lactate threshold on the field itself only. In this research, the Conconi test procedure is used to determine the lactate threshold. When performing an exercise, increased sensitivityand decreased vagal release lead to an increase in cardiac velocity, pulse rate, and cardiac output in order to meet the energy requirements of working muscles **(Shephard, 1987)**. Therefore, it is important to know the heart rate and recovery during the activity. The reduction in cardiac beat frequency and the duration of the recovery period following moderate to severe exercise are utilized as aerobic fitness measures **(Chorbajian, 1971).** Therefore, the primary goal of this study is to experiment, measure, and evaluate the physiological parameters such as VO2 max, lactate threshold, and recovery heart rate among the various college-level sports personalities of Dakshina Kannada and Udupi districts by categorizing individual, team, and combat sports. To carry out this experiment standard operating procedures are followed using a treadmill for different tests and readings are recorded.

2. METHODOLOGY

2.1 Design

This study is based on empirical studies, which use cross-sectional and evolutionary studies to evaluate the differences between groups and relations between tests in order to define the performance of an individual, team, and combat sports participants through physical fitness testing.

2.2 Subjects

The study was performed on a total of 120 sports personality volunteers categorizing into Individual Sports Group (ISG) of 40, Team Sports Group (TSG) of 40, and Combat Sports Group (CSG) of 40 each. The subjects were required to given written consent for participation in this Study and the ethical clearance was obtained from the institutional ethical committee. All subjects were instructed to avoid smoking and drinking alcoholic beverages before the experimental procedures and it is ensured that none of the subjects were taking any medication known to influence the findings of the tests. It was also ensured that the subjects had active rest at least 48 hours before the tests.

2.3 Tests

The following tests were conducted to measure the physiological parameters such as Maximal Oxygen Consumption (VO_2 Max), Lactate Threshold and Recovery Heart Rate.

2.3.1 VO_2 max

Beep Test is used to forecast VO_2Max based on a 20-meter shuttle test level and shuttle score. Previous studies show that maximal oxygen uptake values can be predicted from the level attained on a 20m progressive shuttle run test[3]. Based on the VO2Max Score, a fitness rating may be estimated. VO_2 max can be computed by using the regression equation given by **Flouris et al. (2005)**

$$VO_2\ Max = (Maximal\ Aerobic\ Speed \times 6.65 - 35.8) \times 0.95 + 0.182$$

There are numerous other analytical expressions available in the literature for calculating VO_2Max from shuttle run. There are 21 levels in the beep test. Once the buzzer sound is heard, the person participating in the test must run 20mts. At the next beep he should cross one foot over the line before returning to the starting spot. Similarly he should shuttle back and forth, crossing the 20 mts line at each end at each beep. At beginning of each level the speed increases and the time provided to run each shuttle of 20mts reduces. The fitness score is recorded as the

number of level and shuttle last crossed either at failure or when two consecutive 20 meters are missed by the runner. The mean VO_2 Max of of ISG, TSG and CSG is 52.09, 46.72, and 46.09 ml/kg/min respectively.

2.3.2 Lactate threshold

Determination of lactate threshold is carried out using a motorized treadmill with the gradient set at 1%. At 7 km/h the beginning test speed was set, with increases of 0.5 km/h, up to voluntary fatigue every one minute. The Conconi test procedure is used to determine the lactate threshold.The heart rate is noted on a graph and the point of deflection is taken as the heart rate at which the lactate threshold is reached (Figure1). The lactate threshold rate is expressed as percentage of maximal heart rate. The mean lactate threshold of ISG, TSG and CSG is 90.67, 92.45, and 91.25 respectively.

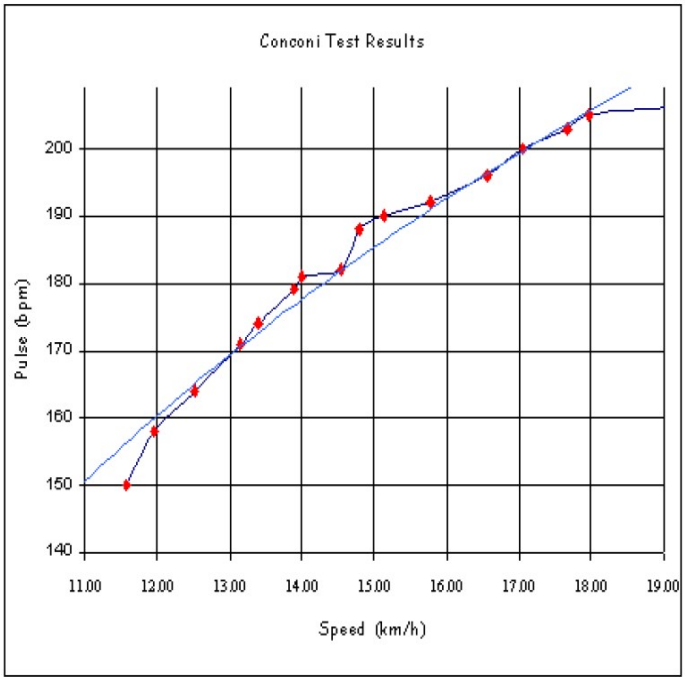

Figure 1. Determination of lactate threshold[14]

2.3.3 Recovery heart rate

Recovery heart rate is recorded soon after the VO_2 Max testing where the subject reaches his maximal heart rate. The participantis made to sit comfortably after the finishing running on the treadmill and his heart rate is recorded at the 1st, 2nd and 3rd minute after completion of the run. The average of the last thirty seconds of each of the minutes is recorded and the average of these three recordings is taken as the Recovery Heart Rate (expressed as percentage of maximal heart rate). The recovery heart rate percentage of ISG, TSG and CSG is 38.89, 40.31, and 40.19 respectively.

3. RESULTS AND DISCUSSION

The demographic data of the subjects are detailed in table 1. The table conveys that all the sportspersons have of similar age and height while understandably the mass of the combat sports group is more. The maximal heart rate is similar as they are of similar age and the BMI does not vary much.

TABLE 1.
DEMOGRAPHIC DATA OF THE GROUPS

Group	Age	Height (cms.)	Weight (kgs.)	BMI (wt. in kgs. /mts. in cms^2	Maximal Heart Rate
Individual Sports Group (ISG)	20.85±1.72	166.45±7.2	57.48±6.53	17.26±1.72	191
Team Sports Group (TSG)	21.03±2.11	170.7±5.75	65.21±7.01	19.11±2.02	191
Combat Sports Group (CSG)	21.28±2.15	171.20±7.28	75.78±13.49	22.10±3.56	191

The analysis of variance (ANOVA) is used to perform statistical analysis for all the tests involved in this study. A confidence level and significant level are set 0.95 and 0.05. Wherever the p-value was found to be less than 0.05 then post hoc analysis was carried out to understand the significant difference between the groups. The following section depicts the interpretation of experimental findings of VO2 max, lactate threshold, and heart rate recovery.

Table 2 exhibits the maximal oxygen consumption, lactate threshold and recovery heart rate of the three groups as derived from the Beep test, Conconi test and the recovery heart rate.

TABLE 2.
MEAN OF DIFFERENT PHYSIOLOGICAL PARAMETERS

Group	VO_2 max	Lactate threshold	Recovery Heart Rate
Individual Sports Group (ISG)	$52.09±2.60^a$	$90.67±2.97^b$	$38.89±4.60^a$
Team Sports Group (TSG)	$46.72±2.86^b$	$92.45±3.32^a$	$40.31±6.17^a$
Combat Sports Group (CSG)	$46.09±2.70^b$	$91.25±2.09^{ab}$	$40.19±1.73^a$

*Note.*The Values are recorded for 40 subjects in each group, VO_2 max is expressed in ml/kg/min and lactate threshold and recovery heart rate is expressed as percentage of Maximal Heart Rate. The value sharing the same superscript is not significant from each other.

Figure 2 shows the VO_2 max of ISG, TSG and CSG personalities. It can be noticed from the below figure that the participants belonging to the individual events have the highest VO_2 max followed by the participants involved in team and combat sports.

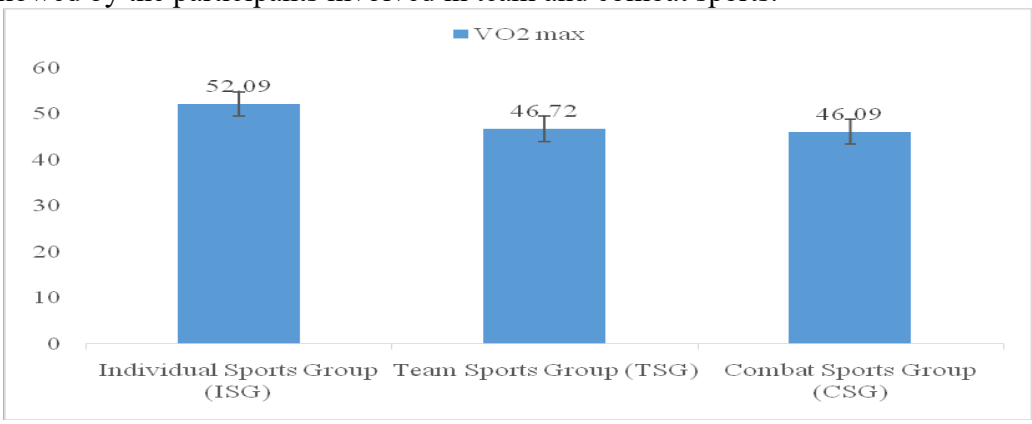

Figure 2. mean and standard deviation of VO_2 max of all categories.

ANOVA test is used to determine the statistically significant difference between the means of the three groups, as indicated in table 3 below.

TABLE 3.
ANOVA RESULT OF VO_2 MAX.

Source of Variation	SS	df	MS	F	P-value	F
Between Groups	870.0556	2	435.0278	58.76959	2.14E-18	3.073763
Within Groups	866.0645	117	7.402261			
Total	1736.12	119				

The significance value associated with the F statistic of the ANOVA result is less than 0.05. This indicates that there is a significant difference between the different sports groups, Individual, Team, and Combat. To categorize which of the pair of the group is significantly different from each other, Tuckey HSD post hoc tests are carried out. It is found that there is a significant difference between the individual and team as well as individual and combat sports groups with a p-value less than 0.01. whereas between team and combat is found to be insignificant.

Figure 3 shows the lactate threshold and recovery heart rate of ISG, TSG and CSG subjects. The mean values of the individual sports, Team sports, and Combat sports are 90.67%, 92.45%, and 91.25%(expressed as percentage of Maximal Heart Rate) respectively for Lactate threshold and 38.89%, 40.31%, and 40.19%(expressed as percentage of Maximal Heart Rate) respectively for Recovery Heart Rate. It can be noticed that participants belonging to team sports has more lactate threshold than the individual and closer value of lactate threshold between the team and combat sports personalities as shown in the below figure.Similarly the recovery heart rate was marginally better for ISG and similar for TSG and CSG.

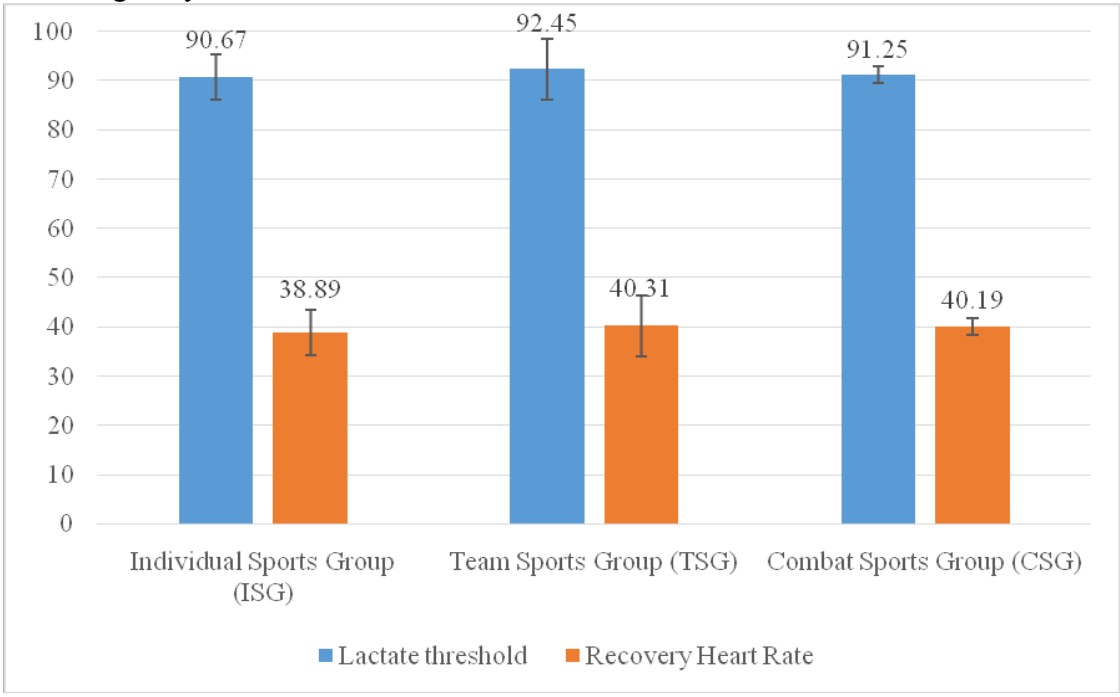

Figure 3. The mean and standard deviation of the heart rate recovery percentage of all groups.

TABLE 4.
ANOVA RESULTS OF LACTATE THRESHOLD

Source of Variation	SS	df	MS	F	P-value	F
Between Groups	65.7203	2	32.86015	4.065422	0.019636	3.073763
Within Groups	945.6921	117	8.082838			
Total	1011.412	119				

The significance value associated with the F statistic of the ANOVA result is less than 0.05. This indicates that there is a significant difference between the different sports groups, Individual, Team, and Combat for lactate threshold. To categorize which of the pair of the group is significantly different from each other, Tuckey HSD post hoc tests are carried out. From the post hoc analysis, it can be stated as there is a significant difference in lactate threshold between the individual and team sports personalities with $p<0.05$. Conversely, there is an insignificant difference in other possible combinations of individual, team, and combat sports.

TABLE 5.
ANOVA RESULTS OF RECOVERY HEART RATE

Source of Variation	SS	df	MS	F	P-value	F
Between Groups	49.67295	2	24.83648	1.198577	0.305299	3.073763
Within Groups	2424.432	117	20.72164			
Total	2474.105	119				

The significance value associated with the F statistic of the ANOVA result is greater than 0.05. This indicates that there is no significant difference between the different sports groups, Individual, Team, and Combat sports.

4. CONCLUSIONS

In the majority of sports, physical demands are complicated and the essential success components for every athlete have to be recognized. Moreover, before a training program can be carried out, the impact of various training kinds must be studied. These modifications in the training program lead to significant muscle adjustments that relate to greater performance. The following concluding remarks can be given with this study.

1. Individual sports participants show better performance in maximum oxygen uptake followed by team sports when compared to combat sports. The individual sports persons comprise of track and field endurance athletes and therefore it can be safely concluded that they would have better oxygen uptake. But the TSG and CSG do not vary significantly.
2. Surprisingly CSG and TSG sportspersons have a better lactate threshold compared to the ISG. The TSG have significantly more lactate threshold from ISG, it does not vary significantly from CSG nor does CSG vary significantly from ISG. This could be because the individual athletes are mostly aerobic runners.
3. There is no significant difference between the three groups in association with the heart rate recovery.
4. This Study throws light on the important physiological profiles of collegiate athletes. It should be noted that the collegiate athletes are not professional athletes and therefore they values would vary on the amount of practice and commitment that they share to achieve excellence. So from this perspective this study could be further progressed to compare the results with the elite counterparts of these groups, and in that context the results would be

more meaningfully interpreted.

5. Further study on elite sportspersons is suggested and would be seen as the next step in interpretation of the results.

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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 is 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 Pandy, 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 t 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 Guajarati 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).**

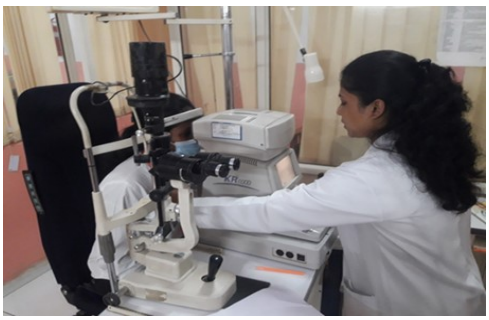
Tommaso Bianchi and Raffaella Bellen on their study in 2020 on the effects of eye yoga exercises on eyesight, done some critical analyses of the effects of eye yoga exercises on eyesight. Some studies deny every form of improvement in this field. However, the results of our study and the evidence found 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

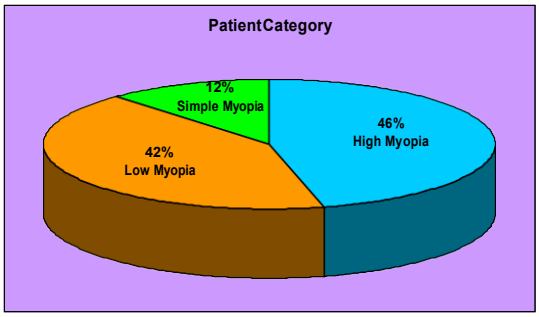
Pre and post-experimental data in the form of myopia patients were taken from the ophthalmology department of NIMS medical college hospital as per the standard procedure. (Appendix 1, figure: b)

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 Fc 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 Fc 3m	6/6p	RE 6/6	RE -2.25D	-1.25D	140
			LE Fc 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-Pinhoon, 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

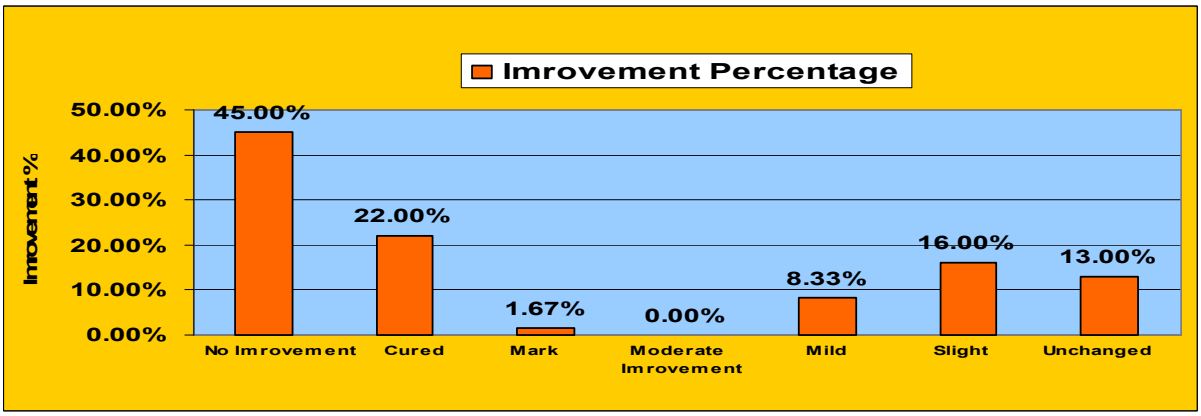


Figure 1 indicates that the rate of no improvement is 45%, Cured 22%, Mark improvement 1.67%, Moderate improvement0%, Mild improvement 8.33%, Slight improvement 10%, Unchanged 13%. Which is statistically significant at P <.05..

FIGURE 2

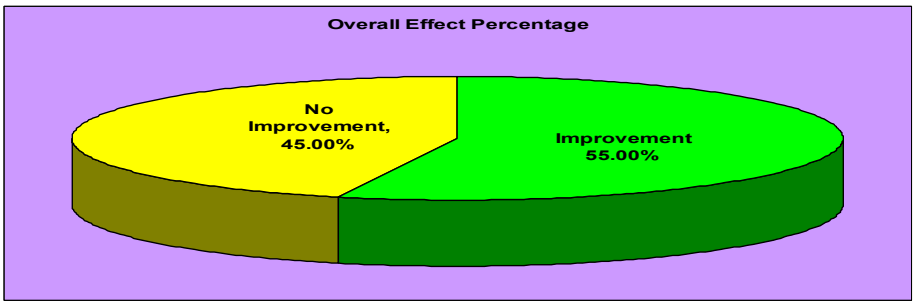


Figure 2 indicates that the overall effect percentage of myopia patient of this study in this graph. According to the graph we show the improvement percentage is higher than No improvement. Total improvement is 55% patients, No improvement 45% which is statistically significant at P <.05.

FIGURE 3

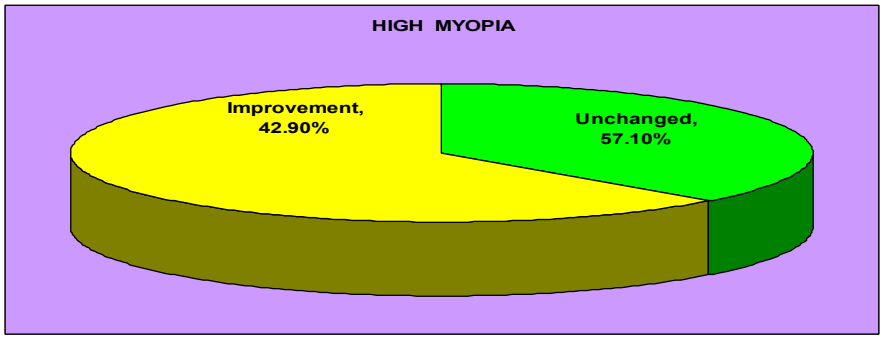


Figure 3 indicates that the 45% patient of total subject was in High Myopia group. With the analysis criteria we found that the improvement rate was less than Not-improvement rate. Total 42.90% patients get improvement and 57.10% remain unchanged of total patient of this group in different percentage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

FIGURE 4

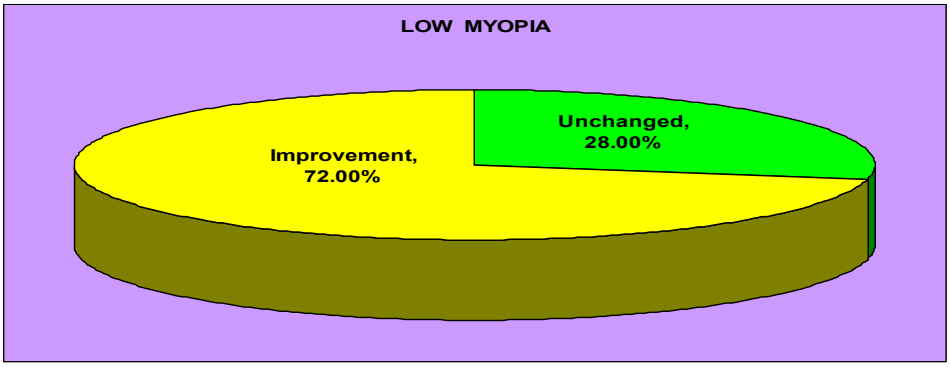


Figure 4 reveals that the 42% patient of total subject was in Low Myopia group. With the analysis criteria we found that the improvement rate was higher than Not-improvement rate. Total 72.00% patients get improvement and 28.00% remain unchanged of total patient of this group in different percentage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

FIGURE 5

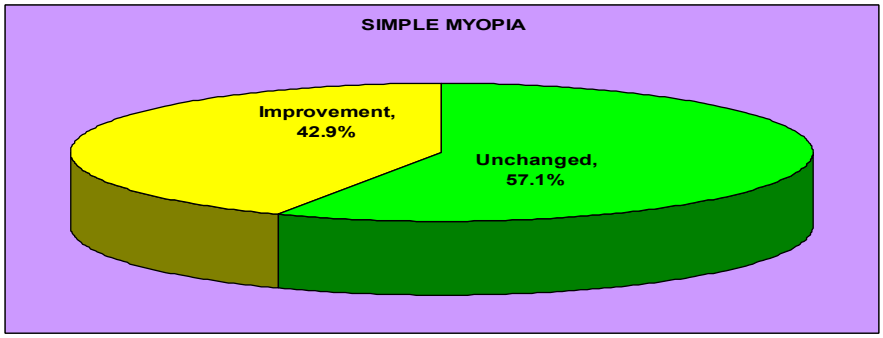


Figure 5 reveals that the 12% patient of total subject was in Simple Myopia group. With the analysis criteria we found that the improvement rate was less than Not-improvement rate. Total 42.10% patients get improvement and 57.10% remain unchanged of total patient of this group in different percentage 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 improvement0%, 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 sports.

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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REVIEW OF LITERATURE ON RECENT TRENDS OF REHABILITATION IN INTERSTITIAL CYSTITIS

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ABSTRACT

Interstitial cystitis means inflammation of bladder wall, and it is chronic disease commonly found in women but this disease affected both sexes. It is mostly found in young people between the ages of 42-48. The cause of IC / BPS is still unknown, but multiple theories exist including Chronic bacterial infection, Bladder inflammation, Neurogenic inflammation, Urothelial dysfunction, Mast cell activation, Genetic prediposition, Autoimmune mechanism, Defective GAG layer, Sensory nervous system, Psychosomatic mechanism, Environmental factors. IC / BPS is divided into Hunner lesion and without Hunner lesion. Patient also complaint of pain throughout the pelvis in the urethra, vulva, vagina, rectum such as lower abdomen and back. Pain usually occurs with specific food or drink and worsen due to bladder filling which improved by voiding. Urinary frequency and urgency are another feature of IC / BPS. Due to insufficiency of IC symptom, underdiagnosed or late diagnosis commonly occur. The health examination involves patient history such as onset, duratyle-related inducing factors, and symptoms, physical examination, urine analysis, questionnaires, and cystoscopy are done to evaluate the disease. Treatment is pharmacological, surgical, or Rehabilitation but in recent time rehabilitation is more effective than pharmacological or surgical treatment.

Keywords: Interstitial cystitis, Chronic pelvic pain syndrome, bladder pain syndrome, irritable bowel syndrome.

1. INTRODUCTION

Interstitial cystitis/Bladder pain syndrome (IC / BPS) is a chronic condition characterized by pelvic ache or perinea pain or pressure which is originating from the bladder, and accompanied by one or more urinary symptoms such as nocturia, increased urinary frequency and urgency. Although the disease affects both sexes, women are more commonly affected then men **(Colemeadow, et al.2020).** Typical IC patients are white and female, The female to male ratio is 10:1. The reported average age of onset is 42 years old to 48 years old; however, in usually, it is found in younger **(Lukban, et al. 2001).** The etiology of IC / BPS is unknown but multiple theories exist including Chronic bacterial infection, Bladder inflammation, Neurogenic inflammation, Urothelial dysfunction, Mast cell activation, Genetic predisposition, Autoimmune mechanism, Defective GAG layer, Sensory nervous system, Psychosomatic mechanism, Environmental factors. **(Colemeadow, et al. 2020)**

Pain is the common symptom of IC / BPS which is experienced by 97% people with the condition. Patient also complaint of pain throughout the pelvis in the urethra, vulva, vagina, rectum such as the lower abdomen and back. Pain usually occurs with specific food or drink and worsen due to bladder filling which improved by voiding. Urinary frequency and urgency are another feature of IC / BPS **(Hanno, et al. 2015).**

Due to the insufficiency of IC symptom specificity, under diagnosed or late diagnosis commonly occur. If, the health examination involves patient history such as onset, duration, lifestyle-related inducing factors, and symptoms, physical examination, urine analysis, questionnaires, and cystoscopy to rule out exclusive disorders **(Dayem, et. al. 2020).**

In addition to pharmacological agents, non-pharmacological approaches to therapy can supply symptom comfort for patients with IC. Every affected person with IC should be counsel about dietary and way of life modification that can minimize symptom flares Symptom flares are also related with stress, which sufferers can decrease by stress reduction techniques. High- tone pelvic flooring dysfunction (PFD) involving pelvic floor muscle tenderness and spasm is usually observed in patient with IC. Patient with high- tone PFD respond to the physical therapy which are given by physician including overall stretching and strengthening exercise, realignment of the sacrum and ilium, myofascial release. Internal massage is also effective to reduce the IC symptoms in patient with high tone PFD or in sufferers who have no longer respond to pharmacological and behavioral therapies, sacral neuro-modulation has been shown to be really helpful in quite a few studies. **(Chaung, et. al. 2009)** Low energy shock wave (LESW), known to have anti-inflammatory, anti-apoptotic effects, and may improve tissue healing has been used to treat diseases of the urinary system, including erectile dysfunction, and Chronic prostatitis chronic pelvic pain syndrome **(Shen, et al. 2021).**

2. ETIOPATHOGENESIS

1 Chronic bacterial infection: Some people thought that bacterial infections become the main cause of the observed changes. Wilkins and his colleagues suggest that as Gardnerella and Lactobacillus may be responsible for the development of IC / BPS **(Grover, et al. 2011).** No evidence of current infection should not lead people to assume that infectious diseases are not working role in the pathogenesis of BPS / IC. Two infectious agents cannot be identified by routine analysis such as nanobacteria and Escherichia coli, in pathogenesis of the disease **(Dinis, et al. 2015).**

2 Mast cell activation: Mast cells originate in the bone marrow and are it is known to be involved in Type I allergies and hypersensitivity reactions. These cells contain a variety of vasoactive and inflammatory substances, such as such as histamine, leukotrienes, prostaglandins and tryptase. Mast cell triggers are usually many, including allergic toxins (supplement C3a and C5a), cytokines (i.e., interleukin [IL] -1, IL-2, tumour necrosis factor [TNF] etc.), Growth factors, bacteria, certain neuropeptides and many research reports on free radicals the number of mast cells in the bladder patients, especially those related to hunner ulcer. The reason for the proliferation of mast cells in IC is unclear. Damaged urothelial cells produce cytokines such as stem cell factor (SCF), which may cause mast cell activation **(Amrute and Moldwin, 2007).**

3 Sensory nervous system: The sensory nervous system of the bladder plays an important role in the pathogenesis of lower urinary tract dysfunction. In fact, that afferent hyperexcitability is the result of neuroinflammation of the bladder. Overexpression of nerve growth has been shown in the mouse urothelium can cause excessive neuronal innervation, pelvic tenderness, increased mast cells and changes in bladder function. Finally, a recent study showed BPS / IC may be affected by factors including changes characteristics of the peripheral bladder afferent pathway respond to normal harmless stimuli based on the above evidence, it can be assumed. The pathophysiology of BPS / IC syndrome and LUTS can be sequential development: Urethral injury (UTI, surgical trauma, chronic over inflated)

4 Inter-epithelial inflammation: Chronic infiltration of inflammatory cells under the epithelium Feel the incoming inflammatory response surge, dorsal horn ganglion and corresponding spinal cord **(Digesu, et al. 2020).**

5 Genetic predisposition: Genetic risk factors for development of the IC are composed of both the chromosome loci and specific genes there in epigenetic, the BPS-specific miRNAs have also been described **(Dinis, et al. 2015).** Research shows that IC is more it is common in twins with chronic fatigue syndrome. Warren and his colleagues studied the prevalence of IC in monozygotic and dizygotic double eggs, reported greater consistency between IQs single-egg twins are compared to two-egg twins, indicating the contribution of genetics to IC / BPS **(Grover, et al. 2011).**

3. CLINICAL PRESENTATION

Pain is the common symptom of IC / BPS which is experienced by 97% people with the condition. Patient also complaint of pain throughout the pelvis in the urethra, vulva, vagina, rectum such as the lower abdomen and back. Pain usually occurs with specific food or drink and worsen due to bladder filling which improved by voiding. urinary frequency and urgency are another feature of IC / BPS. Patient report urinating as frequently as every half to hour throughout the day. Urination provides temporary relief from pain, but pain return due to filling of bladder. Urinary urgency refers to a sudden need of urination in order to relieve pain and discomfort, and is experienced by 85% people. Many patients also report in night time awakening due to pain and voiding. Men who complaint with pain in the pelvic region, as well as urinary urgency and frequency, are usually diagnosed with a related urologic chronic pelvic pain conditioning called Chronic Prostatitis/Chronic pelvic pain syndrome **(Hanno, et al. 2015).** Other symptoms may include dyspareunia and burning sensation in the genitals, up to 58% of IC patients cannot sexual intercourse due to pain **(Lukban, et al. 2001).** Up to 25% of

patients will experience non-urinary symptoms (anal discomfort, itching and burning of the vulva and glands, dyspareunia, painful ejaculation, difficulty walking and sitting). Both men and women experience symptoms after sexual intercourse **(Mishra, 2015).**

4. PHYSICAL THERAPY MANAGEMENT

1 Electrical stimulation: Electrical stimulation can directly stimulate the pelvic floor muscles through a small probe that is inserted into the vagina or rectum. This can help desensitize the nerves and even cause the muscles to contract and relax.

2 Ultrasound therapy: Therapeutic ultrasound uses sound waves to generate deep heat, which can help reduce cramps and increase blood flow, or it can promote healing and reduce inflammation in a non-thermal environment. Ultrasonic equipment can handle radio waves of low frequency and intensity and can be used at home.

3 Transcutaneous electrical nerve stimulation (TENS): With TENS, mild electrical pulses can relieve pelvic pain and, in some cases, reduce frequent urination. TENS can increase blood flow to the bladder. It strengthen the muscles and control the bladder or trigger the release of substances that stop pain.

4 Sacral nerve stimulation: The sacral nerve is the main link between the spinal cord and the bladder nerve. Stimulation of these nerves can reduce the urgency associated with interstitial cystitis.

5 Bladder training:Bladder training is a self-control technique that suppresses the urge to urinate and has been included as a first-line treatment in the AUA guidelines. Parsons and Koprowski used this technique to treat 21 patients with IC / BPS, 71% of whom had at least 50% symptom relief. Chaiken et al. using bladder training combined with dietary adjustments and pelvic floor muscle exercises, 42 patients with refractory IC / BPS were treated. **(Pang and Ali, 2015)**

6 Acupuncture: In recent decades, urologists have accepted acupuncture as an effective treatment. Our previous studies have shown that acupuncture can effectively regulate the storage and emptying function of the bladder. An initial study reported that after acupuncture treatment, one patient improved both subjectively and objectively. After treatment, the condition of 3 patients improved significantly and 2 of them relapsed asymptomatically during the 48-month follow-up. Due to limited evidence, more clinical trials are needed to determine the efficacy of acupuncture in treating IC / BPS. **(Pang and Ali, 2015)**

5. MASSAGE

Holzberg et al. treated ten IC / BPS women using transvaginal massage focused on the levator ani, obturator internus, piriformis muscle and trigger point.In addition to external massage, we find that whole-body massage can help IC/ BPS patients. According to our experience, about one-third of patients may experience temporary symptomatic improvement after 4-6 times of full body massage. **(Pang and Ali, 2015).** Massage refers to a series of actions on the body that have the right pressure to get muscle relaxation. The petrissage, effleurage, tapotement, friction, vibration, and kneading massage techniques are used . These techniques are applied to the upper and lower extremities, trunk, buttocks, abdomen, head and neck, each for a specific period of time. **(Chung & Jarnagin, 2009)**

6. BEHAVIORAL MODIFICATION & STRESS MANAGEMENT

Behavior modification techniques such as sports, bath, meditation, shortening hours of work to create a stress-free environment. Home environment, or join educational programs and patients support groups help keep reduce stress levels. Patients should be encouraged learn positive coping skills reduce daily discomfort activity. Support is a positive coping strategy. It has to do with better health in patients with chronic diseases. This Including spousal support, family, friends, IC / BPS support groups and professional's health field. Patient IC / BPS seek emotional support, talk about your feelings, and request the sympathy of others some benefits have been seen, especially during outbreaks of IC / BPS **(Hanno, et al. 2015).**

7. PELVIC FLOOR PHYSICAL THERAPY

PFPT can be used to treat tenderness and tension of the muscles, and indirectly improve related urinary, sexual and intestinal symptoms. PFPT, specially trained physical therapists perform manipulations on the external trunk and connective tissues of the lower limbs, as well as intravaginal myofascial release techniques to treat the muscles and tissues of the vagina, rectum, abdomen, buttocks, thighs, and lower back. A trial sponsored by the National Institutes of Health showed that compared with general therapeutic massage (GTM), in the multi-center feasibility trial and the second clinical trial, IC / BPS patients who received internal pelvic muscle physiotherapy were treated the treatment result is positive. 59% of patients in the PFPT group and 26% of the patients in the GTM group improved their symptoms **(Han, et al. 2018).**

8. YOGA

A study has shown that yoga can relax the pelvic floor muscles by adjusting relative muscle tension, helping to alleviate the symptoms of IC / BPS. In terms of specific yoga poses, breaststroke, fish pose, half-shoulder pose and alternating nostril breathing are all good for IC / BPS (**Pang and Ali, 2015).** Vinyasa Yoga (Sun Salutation) seems to be the most effective and therapeutic treatment, and patients can easily follow other treatments at home. The cat stretch pose in yoga can relieve lower abdomen pain, while the hip stretch pose can strengthen the hip muscles while learning to control the grip of the core muscles **(Chung, et al. 2015).**

9. LOW ENERGY SHOCK WAVE THERAPY

The term 'shock wave' refers to a high-energy sound wave that terminates in a burst of energy, much like a mini-explosion. A shock wave is a sound wave that is transmitted continuously at a frequency of 16-20 MHz, and can carry energy from the region of positive pressure to the region of negative pressure and propagate the medium. Shockwave (SW) can be applied in a variety of medical situations for its unique physical, physicochemical and biological effects. Therefore, LESW itself may have therapeutic effects in inflammatory diseases such as chronic prostitutes and cystitis. We suggest that LESW can reduce bladder pain. In patients with IC / BPS more advanced basic scientific research LESW is widely used, clinical trials are required it is used to treat IC / BPS **(Lin, et al. 2020).**

10. CONCLUSION

In this research we found that for IC / BPS patient rehabilitation is more effective than pharmacological or surgical treatment. Because it can cure the problem without any harmful effect.

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PHYSICAL ABILITY AND FITNESS TESTING AND MONITORING FOR COACHES, TALENT IDENTIFIERS AND DEVELOPERS: A DESCRIPTION ANDAPPLICATION ON A SOCCER ATHLETE

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ABSTRACT

Every sport has its own demands and these demands can be either physical, mental as well as social. Sports followers will always expect more from an athlete without, most of the times, considering the welfare of the athlete rather, always assuming that he or she is fit to bear their colors and keep or build their legacy. Sports administrators, managers and coaches need to understand what is necessary to do for a player to give his or her best as they must know the real reason behind players' success or failure. It is in this regard that, to ensure regular and promising positive achievements, Player development has to be done strategically, purposefully and in a long term process of talent identification and development, respecting the development of all qualities expected from a strong and competent player on all aspects of physicality (Physical Fitness), mentality (Mental fitness) and keeping a positive social image (Social fitness). This article highlights the necessity of physical fitness testing and monitoring, with football taken as a reference, a highlight of basic fitness testing and monitoring practices that are easy to construct, use and assess. It is recommended that every fitness coach or talent identifier and developer chooses a specific test respecting the target physical aspect (Strength, Speed, Weight, Agility) and use a proper intensity measure with respect to age, gender, competition level and lifestyle of athletes. It is also recommended, as science improves, to pick an approved fitness test specific to a sport and remain up to date on improvement and changes that can be made on a certain test.

Key words: Fitness, Soccer, Athletes, Coaches, BMI, Talent, Physical ability.

1. INTRODUCTION

In football, the ability to produce high-intensity efforts and delay fatigue as much as possible in intermittent efforts is very important **(Sillero, Silva-Grigoletto, Montero, & del Castillo, 2015).** Physical fitness is the state expected from every individual to physically perform a task requiring the use of strength, mastery of body movement manipulation skills, demonstration of activity relevant speed and mastery of body control in different situations of the sport. It is the quality of being able to perform; a quality that permits or facilitates achievement or accomplishment of physical activities.

Basic fitness is the ability to demonstrate the required potential to perform a strenuous activity and this fitness is showcased through strength, speed, stamina and flexibility (**Tancred, 1995).**This has been extended to nine to detail the fitness need of all athletes. These are: Strength, Power, Agility, Balance, Flexibility, Local Muscle endurance, Cardiovascular Endurance, Strength endurance, coordination **(Mackenzie, 1997).** Physical ability is an important quality expected from all athletes. For footballers, there are key qualities reflecting their physical potential. These are: body strength, coordination, speed, agility and all assembled together to result in body fitness. The fitness test, preceded by medical checkup, is the common test applied to assess how physically fit is a football athlete. High impact exercise competency is crucial in football, together with anaerobic potential such as fast runs and repeating sprints. All these qualities need to be considered during talent identification and developed in the process of talent development.

Talent identification is the activity of finding athletes presenting a considerable potential in a specific sporting trade. Working on a good explication of Talent identification. **Vaeyens, Lenoir, Williams, & Philippaerts, (2008)** stated that talent identification is the process of recognizing current players that have the potential to excel within a specific sport. This means that the identification process is performed on athletes demonstrating a certain interest and potential in specific sports, exposed to various tasks to test their capacities and involve them in the identified sport development routine to improve their potential. The process of talent identification marks also another stage where key athletes with distinguishable competences are taken and considered for further development which is talent selection considered as the approval of athletes to join identified sports development service centers. This process is multistage and involves selection and de selection, thus according to **Abbot and Collins (2002),** talent identification involves an attempt to predict the future capacity of performance of an individual **(Abbott & Collins, 2002),** from this prediction, a monitoring process should be put in place to shape these competences, deselect or reorient incompetent ones and even retake some with improved competences.

Identifying future potential is difficult, as one is trying to make predictions regarding how well a player may develop, rather than just assessing their current ability **(Mitchell J., 2013).** This is the reason why there is a need to adequately measure and monitor different traits and abilities specific to the concerned sport so that identification demonstrate specificity and technicality, avoid failures and selected athletes' inconsistencies. Among traits and abilities to monitor from an athlete, the key ones are Physical Ability, Personality Characteristics, Playing Skill, Performance Ability, Pedigree (Genetics make-up) and Preparation (Family, culture, environment). All these traits and abilities have a tremendous role in insuring that the athletes express the required potential, have adequate mental capacities to cope with that sport and have a good surrounding, background and body build to support him during his development. Each and every one of these traits and abilities have their specific features and variables to apply to selected or identified

athletes to judge if they fit in the sport involved and also once selected, apply these tests to see if they are progressing or not.

Body Mass Index (BMI)

The physicality of a footballer is mainly observed from his or her body build. Excess body fat would affect his or her ability to move freely around the field, and the extra weight will fasten fatigue and limit flexibility hence increases in fat-free mass have a direct correlation to strength, speed and explosiveness **(Norton & Olds, 2001).** It was shown that there is a relationship between body mass index (BMI) and body fat percent (BFP) as betters index predicting the influence of total amount of body weight on mobility and stability among soccer players up to 21 years age **(Zerf, 2017).** Body Mass Index (BMI) is the ratio of the athlete's weight in Kilograms to the square of his height in meters. A BMI of 18.5 to 24.9 is considered normal; 25 to 29.9 indicate overweight; and 30 or more, obesity.

Flexibility

Good hamstring flexibility is important for football players as it was proven to be a key factor for performing football-specific skills, such as sprinting, jumping, agility, and kicking in young football players(García-Pinillos, Ruiz-Ariza, Moreno del Castillo, & Latorre-Román, 2015). Keeping the hamstring flexible ensures its fitness and limits its injuries as it is the most common injury area for footballers. It was proven that the harm of a hamstring muscle is due to a low hamstring to quadtorsion at sixty degrees per second on the side with injury and a low hamstring muscle side to side torsion atsixty degrees per second **(Orchard, Marsden, Lord, & Garlick, 1997).**

The sit and reach test can be done for lower back and hamstring flexibility **(Ayala, De-Ste-Croix, Baranda, & Santonja, 2012).**This test was first described by **Wells and Dillon (1952)** and is now widely used as a general test of flexibility **(Katharine & Evelyn, 1952).**

1.4 Strength and Power

The strength and power of a footballer is tested via the assessment of the Muscular strength. It is defined as the maximum force exerted, in a single effort, by a muscle against a resistance. This muscle's endurance will be the number of times that muscle can repeat the same effort against that resisting target. There is a proof that there exists a strong correlation between maximal strength in half squats and sprint performance and jumping height in soccer players **(Wisløff, Castagna, Helgerud, Jones, & Hoff, 2004).** Strength and power tests are done to determine strength levels and to monitor strength changes in conjunction with training programs.

It is important for strength and conditioning coaches to regularly develop and monitor the development of strength and power features, which not only assists on-pitch performance but also in injury risk reduction **(Yu, Altieri, Bird, Corcoran, & Gao, 2021).** The vertical jump test can be performed to measure leg power assisted by arms in the upward propulsive movement.

1.5 Speed and Agility

Speed is the ability to cover a certain distance in the limited time possible. Agility on the other side, is the ability to shift directions while in a run or fast movement. Agility involves quickness or speed and change of direction. Footballers' need this quality to boost their physique and maintain game temper and control, a reason why coaches need to monitor speed and agility.

1.6 Aerobic fitness

The fatigue index is a method applied to discover the increase in fatigue during anaerobic action **(Pavlovic, Idrizovic, Bosnjak, & Pupis, 2016).** Anaerobic exercise consists of activities such as sprinting that rely on glycogen rather than oxygen for fuel. One's fatigue index is measured with a series of timed sprints. Players are expected to be on form and full potential for the whole game. To test this ability, a repeat sprint of anaerobic capability, involving 10 x30 m

sprints performed each 30 seconds is suggested. For more advanced and reliant tests, top level professional soccer players must undergo tests for maximal oxygen uptake (VO2max), velocity at 4 mM of lactate (V4), velocity at maximal oxygen uptake (vVO_{2max}) and oxygen pulseO_2-pulse **(Karakoç, Akalan, Alemdaroğlu, & Arslan, 2012).**

Taking the example of football, as it is required in other sports, talent identification process follows various procedures usually based around a number of areas, these being physical attributes, physiological build, technical skills, psychological status, cognitive and social skills **(Williams & Reilly, 2000).** In this context, I relied on the requirements of football to summarize measurements that can be used to test and monitor the physical ability of young and developing football players.

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The aim of study was to identified physical ability tests to competing youth team to verify its application. Ample contact was made to the University of Ibadan Football team management so that an experimental day can be arranged to administer prepared test to their Athletes.

Permission came from the UI sports chairman, the Director of Sports and Football coach to insure the use of good and fit athletes with medical certificates and background of physical tests.

2. METHODOLOGY

2.1. Selection of Subjects

A total number of five football players ranging between 18 and 23 years old were used and exposed to five tests as planned.

2.2. Selection of Variables

The Height, Weight, BMI, Body fat, Flexibility, Speed, Agility and Aerobic fitness of the subjects were selected for the present investigation.

3.3. Selection of Tests

The Flexibility, Strength and Power, Speed, Agility and Aerobic fitness were measured by Sit Reach Test, Vertical Jump Test, flying 30m Sprint Test, Illinois Agility Run Test and Sprint Test respectively. Body Mass Index was calculated by height and weigh to the subjects.

3.4. Description and Administration of Tests

3.4.1 Body Mass Index tests

Body Mass Index (BMI) is the ratio of the athlete's weight in Kilograms to the square of his height in meters. A BMI of 18.5 to 24.9 is considered normal; 25 to 29.9 indicate overweight; and 30 or more, obesity. To perform this test, Weight and Height scales are needed. The analysis will compare the measurements taken to the normal standards. Other advanced tests requiring technology for body fats are: Calipers, Bioelectric, Impedance Analysis, DEXAS can and Muscle Sound **(Rehman, 2016).** Below are BMI Normal results and verdict are presented in Table 1.

TABLE 1
RATING OF BODY MASS INDEX FOR FOOTBALL PLAYERS

S.No.	Classification	BMI Scores
1	Underweight	less than 18.5
2	Normal Weight	18.5 – 24.9
3	Overweight	25 – 29.9
4	Obesity (Class 1)	30 – 34.9
5	Obesity (Class 2)	35 – 39.9
6	Extreme Obesity (Class 3)	40+

2.4.2 V-Sit Reach Test

Test Description: With reference to **Wood (2008),** A tape for marking the ground, marker pen, and ruler are needed. A two feet straight baseline is traced on ground using a tape, an estimation line perpendicular to the midpoint is extended to two feet on each side. Every half-inch has to be indicated using a writing material on the estimation line with the last meeting the baseline at point zero. The subject removes their shoes and sits on floor with the measuring line between their legs and the soles of their feet placed immediately behind the baseline, heels 20.48cm to 30.48 cm apart. The Palms are placed on the estimation line downward with thumbs clasped. The testee smoothly reaches forward as further as possible, keeping fingers on the estimation line with legs flatly stabilized by an assistant. Three warm-up tries are made then the testee performs the fourth and wait a while for recording his or her performance. Jerky movements are avoided and the fingertips remain level and the legs flat. The score is recorded to the nearest half inch (or cm) as the distance before (negative) or beyond (positive) the baseline. The findings should be compared to normal measurements as shown in Table 2.

TABLE 2
RATING OF FLEXIBILITY FOR FOOTBALL PLAYERS

Sex ►	Males		Females	
Rating	cm	inches	cm	inches
Super	> +27	> +10.5	> +30	> +11.5
Excellent	+17 to +27	+6.5 to +10.5	+21 to +30	+8.0 to +11.5
Good	+6 to +16	+2.5 to +6.0	+11 to +20	+4.5 to +7.5
Average	0 to +5	0 to +2.0	+1 to +10	+0.5 to +4.0
Fair	-8 to -1	-3.0 to -0.5	-7 to 0	-2.5 to 0
Poor	-20 to -9	-7.5 to -3.5	-15 to -8	-6.0 to -3.0
very poor	< -20	< -7.5	< -15	< -6.0

2.4.3 Vertical Jump Test

Description: Vertec or jump mat, marked wall or tape and chalks are needed. The reach and Jump heights are two parameters needed with their difference used to measure his strength and power. To find the reach height, the testee positions straight on the wall and reaches up as possible, keeping feet on floor, then the highest fingertip reach is recorded. The testee goes away of the wall, and tries to reach as high as possible in a vertically leaping motion taking his body in the air with the assist of legs and arms. The jump height is the highest point reached by jumping, using or not using a counter-movement technique. After three attempts, the best is considered. Measures Range is given be low in Table 3 **(LaptrinhX, 2021).**

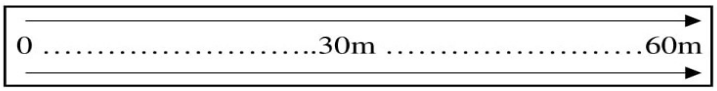
TABLE 3
RATING OF STRENGTH AND POWER FOR FOOTBALL PLAYERS

Sex ►	Males		Females	
Rating	cm	inches	cm	inches
Excellent	> 28	> 70	> 24	> 60
Very good	24 - 28	61-70	20 – 24	51-60
Above average	20 - 24	51-60	16 – 20	41-50
Average	16 - 20	41-50	12 – 16	31-40
Below average	12 - 16	31-40	8 – 12	21-30
Poor	8 - 12	21-30	4 – 8	11-20
Very poor	< 8	< 21	< 4	< 11

Variations: The vertical jump is typically performed with a counter movement, wherever there's bending of the knees instantly before the jump **(LaptrinhX, 2021).** It can also be practiced as a squat by starting with bent knees. Arm movement can also be omitted, with one hand straight up while the other is kept close to the hip, eliminating leg muscles and decreasing the impact of variety in arm motion coordination. This test can also be off-leg, putting a step into the jump or take-off off one or two feet with respect to the sport involved.

2.4.4 Flying 30m Sprint Test

The Speed-flying 30m sprint test was considered to assess a footballer. The purpose of this test is to determine acceleration, maximum running speed and speed endurance, depending on the distance to run. The objective of most speed tests is to use lesser time possible for the required distance.



Speed-flying 30-meter sprint test

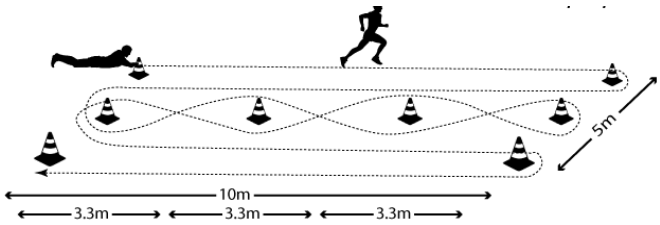
Description: The basic equipment is measuring tape or marked track, stopwatch or timing gates, cone markers. Position cones along a straight line at zero, thirty and sixty meters with stopwatch holders or timings gates at thirty and sixty meters. The first thirty meters are for acceleration to reach the highest speed possible while the last thirty (30 m to 60 m) are for powerful and maximum sprint. To boost their morale and maximize the speed, hint like keep low, use of legs and arms to drive hard drive are used. The timer starts once the runner's torso crosses the first gate or cone (30 m) stopping it at 60 meters mark. Allow two trials with the best one recorded to the nearest hundredth.. The flying 30m time can be used to predict 100m sprint times **(Mackenzie B. , 1999).** Below is normal score for youth, 16 to 19 years old **(Davis et. Al, 2000)** and Elite **(Chu, 1996)** with all timings in seconds.

TABLE 4
RATING OF SPEED FOR FOOTBALL PLAYERS

Sex ►	Males		Females	
Rating	16-19 Yrs	Elite	16-19 Yrs	Elite
Excellent	<4.0	<2.6	<4.5	<3.0
Above Average	4.0-4.2	2.6-2.9	4.5-4.6	3.0-3.3
Average	4.3-4.4	2.9-3.1	4.8-4.9	3.3-3.5
Below Average	4.5-4.6	3.1-3.3	4.9-5.0	3.5-3.7
Poor	>4.6	>3.3	>5.0	>3.7

2.4. 5The Illinois Agility Run Test

The Illinois Agility Run Test (Physiopedia, 2021) has the objective of testing and monitoring the development of the athlete's speed and agility. It is a multidirectional test performed to test and monitor the footballer's ability to outclass an opponent by changing directions.



Adapted image of Illinois Agility test **(Getchell, 1979)**

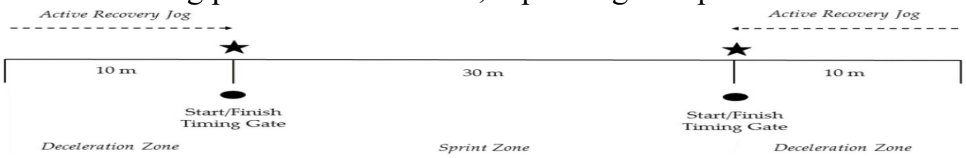
Description: As described by **Kuwdtee (2019), the** tester needs a flat surface or running track, 8 cones, Stop watch or timing gates. The course is ten meters long and five meters wide. Five lanes might be enough on a track. Four marking cones are placed at the start, the two turning point and the finish with a distance of 3.3 meters between the center cones. The testee goes on the floor lying flat downward, on the starting signal, he/she pushes on his/her feet and executes the course to the finish with high speed and quick movement possible. The time is taken from the starting signal up to the finish with the result aligned with those of last test to discover the progress. Below are expected results and ratings for a16-19 years old player, with timings in seconds **(Davis & al, 2000).**

TABLE 5
RATING OF AEROBIC FITNESS FOR FOOTBALL PLAYERS

Gender	Excellent	Above Average	Average	Below Average	Poor
Male	<15.2 Sec.	15.2-16.1	16.2-18.1	18.2-18.3	>18.3
Female	<17.0 Sec.	17.0-17.9	18.0-21.7	21.8-23.0	>23.0

2.4.6 Aerobic fitness Test

Description: To perform this test, 2 stopwatches or timing gates, measuring tape, 8 marker cones, at least 50 meter track are required. The distance to sprint on is set between cones and lines 30 meters apart with two more marks set at 10 meters on each end as deceleration and recovery (Slow down and turning) area. At the tester's command, the subject execute the 30 meters with maximum speed to the finish then slows down in the ten meters and comes back to the finish which becomes the start line of the next trial. Two stopwatches are used, with both started on "go", one keeps running while the other records the time of the first sprint. The slow down and turning period is 30 seconds, separating the sprint to the next



An adapted Repeated Sprint Ability (RSA) test **(Lockie, et al., 2016)**

To find the fatigue index, Two averages of the first and last three attempts are divided (First average over the last average) yielding a value within 75%-95%. Below are the normal range and performance ratings for fatigue index Sprint test **(PtDirect, 2021)** presented in Table 6.

TABLE 6
RATING OF AEROBIC FITNESS FOR FOOTBALL PLAYERS

S,No.	Rating	Fatigue Index
1	Excellent	> 89%
2	Good	85-89 %
3	Average	80-84%
4	Poor	< 80%

3 DATA ANALYSIS & RESULTS

TABLE 7
PARAMETRS OF PHYSICAL FITNESS OF SOCCER ATHLETES

Body Mass Index					
Parameter	**A1**	**A2**	**A3**	**A4**	**A5**
Age	23	21	18	20	19
Weight (Kg)	76	66	74	93	73
Height (m)	1.83	1.85	1.79	1.90	1.78
BMI (Kg/m^2)	22.69	19.28	23.09	25.76	23.04
BMI Verdict	Normal	Normal	Normal	Overweight	Normal
Flexibility V-Reach Test					
Reach 1	11	9	8	15	13
Reach 2	12	10	8	16	12
Verdict	Good	Good	Good	Good	Good
Speed-Flying 30m Sprint Test					
1st trial (Sec)	4.03	4.47	4.28	4.01	4.02
2nd trial	4.09	4.07	4.2	4.00	4.91
Best Trial	4.03	4.07	4.2	4.00	4.02
Verdict	Excellent	Excellent	Above Average	Excellent	Excellent
Agility: The Illinois Agility test run					
Parameter	**A1**	**A2**	**A3**	**A4**	**A5**
1st Turn (Sec)	15.59	16.49	15.75	15.35	15.94
2nd Turn (Sec)	16.50	16.87	18.28	15.15	15.59
Average (Sec)	16.04	16.68	17.01	15.25	17.76
Verdict	Above Average	Average	Average	Above Average	Above Average
Fatigue index monitoring Sprint test					
1st Trial	3.76	3.37	3.06	3.00	3.37
2nd Trial	3.13	3.13	3.41	3.10	3.37
3rd Trial	3.20	3.43	3.25	3.85	2.97
1st Average	3.363	3.310	3.240	2.893	3.236
8th Trial	3.65	3.56	3.38	3.40	3.12
9th Trial	3.18	3.63	3.42	3.44	3.41
10th Trial	3.74	3.66	3.44	3.00	3.69
2nd Average	3.523	3.616	3.413	3.28	3.406
Fatigue Score	0.954	0.915	0.949	0.909	0.950
Fatigue %	95.4	91.5	94.9	90.9	95
Verdict	Excellent	Excellent	Excellent	Excellent	Excellent
Overall Fitness conclusion					
Verdict	Considerable	Considerable	Need Improvement	Need Improvement	Considerable

4. DISCUSSION

The normal BMI ranges from 18.5 to 24.9. Among the 5 athletes tested, 4 were found with normal weight i.e. their body mass corresponds to their height which is the ideal measurement for a soccer player. The fifth athlete figures in the overweight range with a BMI of 25.76. Once introduced to exercise, he can manage well his eight up to the normal. The V-sit and reach test scores rank into seven levels from Super to Very poor. The score ranges from Super-above 27 cm (>20cm) to Very Poor, Less than negative 20cm (<-20cm). All the five tested players figure in the third level (Good) with the reach distance ranging from 6 cm to 16 cm which is acceptable but not encouraging. The flying speed scores have five variations from Excellent (below 4.0 seconds) and Poor (Above 4.6 seconds). All the tested players managed to excel in this test with four out of five scoring in Excellent and the last scored above average which is next to excellent. The Illinois Agility run test varies from excellent (less than 15.2 seconds) to Poor (Above 18.3 Seconds). 60%

of the tested players are above average while 40 % scored average. This judges their agility not poor but requires to get improved.The Sprint test, the anaerobic test with ten consecutive 30 meters sprint test, has four levels of performance. Excellent, Good, Average and Poor. The highest score is Excellent with the fatigue level above 89% while the least is Poor with less than 80 %. All tested players fatigue index is in the first level which is a promising result. It has to be noted that the all five players tested need more training to boost their fitness.

5. CONCLUSION

The performance of these tests should follow the conventional way of physical training and conditioning in football as well as the principles of training including periodization and the practical considerations of frequency, intensity, time, type, specificity, progressive overload, reversibility, and the player's ability to tolerate training load to ensure fitness development. The body conditioning of a soccer player should respect the physiology and morphology of players, more specifically in aerobic and anaerobic potential boost. It has to be noted that these entire tests can be used to monitor the physical ability of players thus a single trial is not enough to judge a player but a base and a point of reference in monitoring his physical abilities.

6. RECOMMENDATION

It is recommended that coaches apply these tests to test the physical ability of new players, at the start of the new season and monthly repeat these tests to assess the progress as part of physical fitness monitoring practice. The modern sport is also improving thus there are a lot of improved and technological test to measure the identified abilities. Every team or talent selectors, depending on their capacities can easily find possible tests to assess athletes during recruitment and monitor their physical ability progress during the development period.

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A COMPARISION OF PERSONALITY VARIABLES OF MALE KABADDI PLAYERS OF UTTAR PRADESH

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ABSTRACT

The purpose of the study was to compare and investigate the personality characteristics of district and state level male Male Kabaddi Players The sample consisted of three hundred (district level=150, State level=150) male Kabaddi players of U.P,. Propulsive research design was used for the purpose of study. Eysenck's Personality Questionnaire-R (E.P.Q.-R) prepared by Eysenck and. Eysenck [16] was selected to measure the four dimensions of personality. The Eysenck's Personality Questionnaire- R (E. P. Q.-R) is a valid and reliable instrument. In order to find out the significant difference between district and state level male Kabaddi Players, mean, SD and t-ratio were computed, level of significant was set at .05 level. The results of analysis indicated that the statistically significant differences were not found between college level and state level male kabaddi players in their all dimensions of personality i.e. psychoticism, extraversion, neuroticism and social desirability. The district level male Kabaddi Players were found more psychotic, extroverted, neurotic and less Social Desirability than state level counter parts

Keywords: Male, Kabaddi, Personality Factors, State level , District levels

1.INTRODUCTION

Kabaddi is an Indian game. It was included in Asian games in 1990 and since then India has been continuously winning gold medal for Kabaddi in Asian games. Growing enthusiasm of the international viewers as well as the growing media attention the winner country gets has enhanced the prestige attached to any international sports event.

Kabaddi is a team game of speed, stamina, endurance, strength and skill. Although it is a team event, individual fitness plays a vital role in the success of the team. Many a times, it is a missing link of the team. Kabaddi has gained fame all over the world. Kabaddi is a attacking and defensive game. Especially of the attack is an individual effort while defence is a combined effort. Kabaddi players are less extrovert and more psychoticthan Kho-Khoplayers **(Karad & Wahid, 2011)**

Kabaddi is a combative team game, 'played with absolutely no equipment, in a rectangular court, either outdoors or indoors with seven players on each side of the ground. Each side takes alternate chances for offence and defense. The basic idea of the game is to score points by entering into opponents 'court and touching as many defense players as possible without getting caught in a single breath. In kabaddi the basic defense position are in three zones, center zone and left zone, the defense player occupying one of thesezones have specific functions to perform. In co-ordination with his counterparts in the other defense zones, for maintaining the defensive strong hold. The player is identified by the position he occupies irrespective of the varying number of offense and defense players **(Kumari. and Sudhakara, 2019).**

Hein (1954) found team sports participants to be more extraverted than those participating inindividual sports. He also found that participants on individual and dual sports possessed less amount of self assurance. **Slusher (1964)** using MMPI found that personality differences existed even among athletes who athletes who participated in different sports. **Singh and Singh (1986)** found that neuroticism tendency was significantly in the non sports groups of Kabaddi and Kho-Kho Players whereas. the sports participants to be more extraverted and vigorous and less anxious, neurotic, depressed and confused. Elite athlete was found to have significantly great erositive mental health than non-athletes. Positive mental health is characterized by less tension, depression, anger and confusion.

Many researchers (Kane,1990;Vanek,2000; Cratty et all, 2000) have proved that certain personality traits are dominant and are special characteristics of certain specific sports activities.

Many researchers compared the personality differences between athletes and non-athletes in their investigations **(Booth, 1958; Hunt, 1969; Dureha, 1987, Frank H (1984; Malumphy, 1970; Shankar, 1986; Mohan, , 1979: Davis and Mogk, 1994; Singh and Singh, 1986; Shariati & Bakhtiari, 2011; McKelvie, et. al., 2003; Smojver, et. al., 2001; Shariati & Bakhtiari, 2011)** by administering different personality scales. Comparison between male and female players **(Singh and Barar, 1987; Rushall, 1967; Kamlesh, 1986; Karad, 2010 and Kuravatti and Malipatil, 2017)** as well as comparision between individual and team game players **(Singh and Debnath, 1989; Kirkcaldly, 1982; Hein, 1954)** were also performed in their personality traits. Some of researchers had find out the significant differences between Kabaddi and Kh-Kho players **(Singh and Singh, 1986);** between kabaddi and volleyball players **(Josh & Vakani, 2011);** between male and female Kabaddi players **(Karad, 2010).**

Majority of the investigator have indicated that male Kabaddi players differ from female Kabaddi players on a number of personality traits and several investigator have tried to find personality differences between male and female Kabaddi players, which influenced by sports performance with addition to many other personality variables**(Singh & Singh, 2012).**

2. METHODOLOGY

2.1 Selection of Subject

The sample consisted of Three hundred (District level=150, State level=150) male Kabaddi players from U.P., who have taken part in district level and state level Kabaddi tournament, were selected as the subjects of the study. The age of the subjects was between eighteen to 21 years..

2.2 Research Design

Propulsive research design was used for the purpose of study. Sample of the study was equal for three different levels Male Kabaddi Plyers for the investigation of personality traits

2.3 Description of Questionnaire

Eysenck's Personality Questionnaire-R (E.P.Q.-R) prepared by **Eysenck and. Eysenck (1975)** was selected to measure the four dimensions of personality The Eysenck's Personality Questionnaire- R (E. P. Q.-R) is a valid and reliable instrument. The Questionnaire consists of 90 items to measure the personality traits of the players and 90 items representing three dimensions of personality i.e. Extraversion (21), Psychoticism (25), Neuroticism (23) and Social Desirability (21) on which there was no right or wrong answer in the responses. The responses are given in the form of Yes/ No. The scoring of the completed questionnaire was done according to the method mentioned in the Manual of E.P.Q-R (Personality Questionnaire with the help of scoring key.

The Questionnaire had test-retest reliability 0.83 for Psychoticism, 0.90 for. Extraversion, 0.89 for Neuroticism, and 0.86 for Social Desirability in case of males. In case of female Questionnaire had had test-retest reliability 0.71 Psychoticism, 0.87 for Extraversion, 0.80 for Neuroticism, and 0.86 for Social Desirability. The overall test-retest reliability with age and sex were .78 for Psychoticism, .89 for. Extraversion, .86 for Neuroticism and .84 Social Desirability.

2.4 Statistical Analysis

To assess the district and state level male Kabaddi players four dimensions of personality i.e. psychoticsm, extraversion, neuroticism and social desirability, means and standard deviations and t-ratio were computed

3. RESULTS

To find out the significant differences between district and state level male kabaddi playerson the four dimensions of personality of district and state level male Kabaddi players of means and standard deviations, I ratios were computed and data pertaining to this have been presented in Table 1 and 2 and depicted in figure 1

TABLE 1

DESCRIPTIVE STATISTICS OF FOUR DIMENSIONS OF PERSONALITY OF MALE KABADDI PLAYERS OF DISTRICT AND STATE LEVELS

Personality Dimensions	Statistics	District Level (N=150)	State Level (N=150)
Psychoticism	M SD	7.47 2.76	7.31. 2.79
Extraversion	M SD	10.31 3.09	10.13 3.28
Neuroticism	M SD	9.74 2.82	9.37 2.85
Social Desirability	M SD	7.46 2.59	7.95 2.88

The mean scores of four dimensions of personality of district and state level male Kabaddi players have been depicted in figures 1.

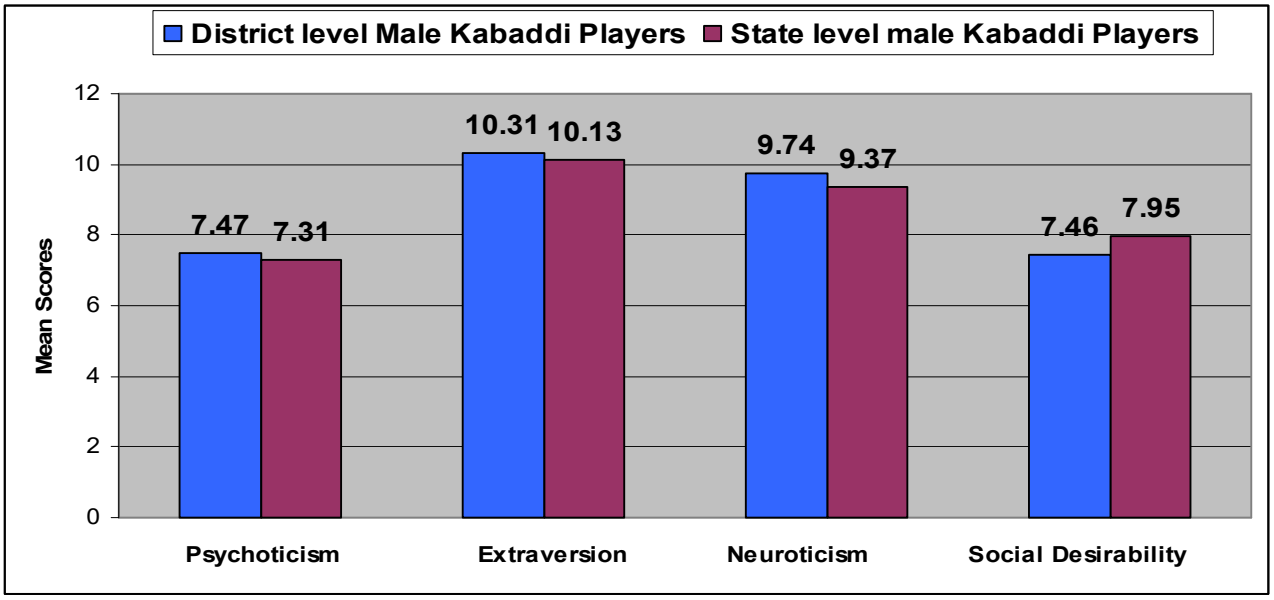

Figure-1: Mean Scores of district and state level of male Kabaddi Players on four personality dimensions i.e. Psychoticism, Extraversion, Neuroticism, and Social Desirability

TABLE 1

SIGNIFICANCE OF DIFFERENCES BETWEEN MEAN SCORES ON FOUR DIMENSIONS OF PERSONALITY OF STATE LEVEL AND DISTRICT LEVEL MALE KABADDI PLAYERS

Personality Dimensions	Levels	Mean	MD	σ DM	t-ratio
Psychoticism	State Level District Level	7.31 7.47	0.16	0.32	0.50
Extraversion	State Level District Level	10.13 10.31	0.18	0.36	0.50
Neuroticism	State Level District Level	9.37 9.74	0.37	0.33	1.12
Social Desirability	State Level District Level	7.95 7.46	0.49	0.32	1.53

*Significant at .05 level,
t .05 (298) = 1.97

It is clearly evident from the Table 7, that statistically significant differences were not found between college and state level male kabaddi players in their all dimensions of personality i.e. psychoticism, extraversion, neuroticism and social desirability, as the obtained t-values. of 0.50, 0.50, 1.12 and 1.53 were lesser than the required t .05 (298) = 1.97.

4. DISCUSSION

Personality refer to more or less stable internal factors that make one person's; behaviour consistent from one time to another and different from the behaviour other people that would of manifest in comparable situations **(Borgatta and Lambert, 1968)** Personality is the overall pattern

of psychological characteristics that makes person a unique individuals. It is well known fact that players, of one game differ from the players of other games in their personality traits **(Carron, 1980).** The temperament of athletes in numerous sports is one among the problems that have invariably been of interest of behavioural soul. participation in individual or athletics activities an illustration of temperament of athletes **(Sharma, 2016) .** Personality can be influenced by some factors such as environment (family, sports, community, school, nature of sports, etc.), heredity and gender **(Devon, 2000).**

When the district and state level male Kabaddi players were compared to gather on four dimensions of personality, t-ratio resulted in in significant on psychoticism (0.50), extraversion (0.50), neuroticism (1.12) and social desirability (1.53) dimensions of personality, as the obtained t-values. were lesser than the required value to be significant. The district level male Kabaddi Players were found more psychotic, extroverted, neurotic and less Social Desirability than state level counter parts

5. CONCLUSION

Statistically significant differences were not found between college level and state level male kabaddi players in their all dimensions of personality i.e. psychoticism, extraversion, neuroticism and social desirability.

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