



ISSN: 2456-0057

IJPNPE 2020; 5(2): 232-235

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Received: 06-07-2020

Accepted: 17-08-2020

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## Effect of yogic exercises and aerobic exercises on motor fitness variables of muscular strength and flexibility of secondary school children

**Kum-Jayamma and Dr. KP Martin**

### Abstract

Life will not be life without physical activities. Through physical activities alone people were able to survive in this world. The story of evolution throws some light on the nature and types of activities which are an essential part of modern physical activities which are to be fit for day-to-day existence and to meet the occasional emergencies that arise. Yoga may be an important tool for every individual to maintaining health and improving quality of life. Aerobic exercise can be viewed as an intricate system of bodily supply and demand. That is the body needs energy for any kind of activity and the need is filled by burning off the foods that eat. The purpose of the study was to Effect of 16 -Weeks Yogic Exercises and Aerobic Exercises on Muscular Strength and Flexibility in Secondary School Children. For the purpose of the study One hundred fifty (50 in Yogic Exercises group, 50 in Aerobic exercises group, 50 in control group) Morarji Desai Minority Residency School Vijayapura, Karnataka, were selected as the subjects for this study. The age of the subjects was between 14 to 16 Years. In order to investigate the existence of significant difference among Yogic Exercises group, Aerobic Exercises group and Control group on Muscular Strength and Flexibility of Secondary School Children.

Emulate data was collected after the Experimental period was collected data was statistically Examined to find out the significant improvement using and analysis of whenever the 'F' ratio was found to be significant, Scheffé's Post-Hoc test, was used as post-test to determine which of the paired means differed significantly. In all cases, the criteria for statistical significance were set at 0.05 level of confidence 0.05. Later yogic exercises and aerobic exercises is given for experimental group. For the Sixteen weeks by keeping the control group constant. Finally, all the Motor Fitness variables such as Muscular Strength and Flexibility tested scores are recorded. Later, collected data was put into the statistical using Analysis of Covariance (ANCOVA) to find out the significant mean differences. The result showed that there was significance difference on Muscular Strength among Yoga group, Aerobic group and Control group. The result also showed that there was significance difference on Flexibility among Yoga group, Aerobic group and Control group.

**Keywords:** Yogic exercises and aerobic exercises, muscular strength, flexibility

### Introduction

Yoga is a Physical, Mental and Spiritual Practice aimed at attaining permanent peace within. This practice for permanent inner peace originated in ancient India and it also belongs to the six school of Hindu philosophy or six "as tika". Yoga is also considered as a form of exercise because of its physical forms and postures that have physical benefits to the body and it is also considered as meditation because of the mental and emotional benefits. It gives as well as it is also considered spiritual because it involves getting in touch with your spirit or beyond physical nature. This is why yoga is known as a combination of physical, mental and spiritual exercise and development or creating a union with your inner self which can benefit life.

Yogasana are very effective in throwing out all our body wastes and bring control over the body and organs are proper functioning of which depends our health and happiness. The asana improves mental power and health in controlling the sense organs. It increases the elasticity of our body and makes the body more active and supple. The blood circulation takes place more smoothly and properly and the body becomes capable of more work. It improves our resistance power against diseases and do not allow any external matter to accumulate in the body, they keep the body free from diseases. The different asana cleans the blood circulation, drain of our body and circulates blood freely to all parts of our body and helps keep our body free from impurities.

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Yogasana are the best means to keep organs in proper functioning order. It is not only improving body health, but also have sobering effects on the mind. The mind becomes balance and peaceful. The practice of yogasana is very effective activating on various so that they secrete their juices in the required quantity and function properly.

Aerobic exercises are the exercises that involves or improves oxygen consumption by the body. Aerobic means 'with oxygen', and refers to the use of oxygen in the body metabolic or energy generating process. They are several kinds of aerobic exercises which are performed at moderate levels of intensity for extended period of time. Aerobic training involves any exercises performed using no added weight and is commonly referred to as body weight training. Aerobic training can be done as a standard outline, or programmed into any weight loss, body building or fitness workout. It has many benefits and is convenient, and it can be tailored to suit beginner, intermediate or advanced trainees.

Muscular strength training is a type of physical exercises specializing in the use of resistance to induce muscular strength contraction which builds the strength, anaerobic muscular strength and size of skeletal muscles strength training is typically associated with the production of lactate, which is a limiting factor of exercises performance. Regular muscular exercises lead to adaptations in skeletal muscle which can prevent lactate levels from rising during strength training.

### The aim of yoga

The aim of yoga is to attain perfection of the intellect, both of the head and the heart, so that, the artist becomes devoted, true and pure. This demands an almost total relinquishment of interest in other activities of life except the chosen path. The mind is fluid and runs after sensual pleasures. Art demands total undivided focal attention. Hence Patanjali explains that the mind must be controlled and then submitted to serve the artistic nature of yoga to its highest potency. Yoga or any art requires acute sharpness of intellect and alert organs of perception. In yoga there is no competition but it requires freedom to think and reconstruct with a desire to perform better. Then it brings to the yogi the most exalted enlightenment. From now on, wherever the yogi is and whatever he does, his thoughts are rooted in spiritual communion, which takes him to the Zenith of spiritual life.

### Statement of the problem

Effect of Yogic Exercises and Aerobic Exercises on Motor Fitness Variables of Muscular Strength and Flexibility of Secondary School Children.

### Significance of the study

1. The study would to explore the effectiveness yogic exercises and aerobic exercises on selected motor fitness variables of the School Children.
2. The study may help to the physical educationists and coaches to build the best method of training to develop the motor fitness variables variables.
3. The study will promote research and growth in applying choreography in the field of yogic exercises and aerobic exercises training.

### Objectives of the study

The major objective of the study was to determine the

changes on selected motor fitness variables due to the effect of yogic exercises and aerobic exercises training.

### Hypotheses

1. On the basis of available literature, the scholar has formulated the following hypotheses
2. It was hypothesized that; there is a significant improvement in selected Motor Fitness Variables due to the influence of Yogic Exercises and Aerobic Exercises training may improve the selected motor fitness variables of the secondary school children.

### Delimitation of the study

1. The study was confined to one hundred and fifty (150) girls' students of Morarji Desai Residential School Vijayapura, Karnataka. Selected for the study.
2. The age group of the subjects ranged from 14 to 16 years.

### Limitations of the study

The change in climatic conditions such as temperature, atmospheric pressure humidity, act. During the training as testing period could not be controlled. By the Research their influence on the results of the study was considered as one of the limitations.

### Methodology

The purpose of the study was to find out the "Effect of Yogic Exercises and Aerobic Exercises on motor fitness variables of muscular strength and Fixability". For the present study the experimental research design was employed where in training is applied to study the cause and effect of the training. To carry out the study, one hundred fifty subjects were selected at random from Morarji Daisy Residential School of Vijayapura city. The having their age in the range of 14 to 16 years.

The subjects are classified into their groups one is control group which is not exposed to any training and other two is experimental group which is exposed to yoga training. Before carry out the, all the subjects were tested and their initial scores measured are and recorded on the motor fitness variables of the subject. Later yogic exercises and aerobic exercises is given for experimental group. For the 16 weeks and by keeping the control group constant.

Finally, all the scores are recorded. Later, collected data was put into the statistical using Analysis of covariance (ANCOVA) to find out the significant mean differences. The study reveals that yoga training played vital role in increasing the muscular strength and Flexibility The so, it can be concluded that yogic exercises and Aerobic exercises made significant impact on the control group motor fitness variables of the secondary school children under study.

**Table 1:** Selection of variables

Sl. No.	Variables	Measurement
01	Muscular Strength	Half sit up per minute
02	Fixability	Sit and Reach test

### Selection of tests

The test items were selected for this study after thorough review of literature as well as consultation with experts, physical education professionals, and also Research supervisor. The selection test and the criterion variables are presented in the Following table.

**Table 2:** Analysis of covariance for pre-test and post-test on muscular strength of yogic exercises, aerobic exercises and control group of secondary school children

Type of test	Yogic exercises	Aerobic exercises	Control group	Source of variance	Sum of the squares	df	Mean square	F-ratio
Pre-test mean	17.780	18.840	17.760	Between	38.173	2	19.087	2.921
SD	1.3745	1.2992	4.002	Within	960.42	147	6.533	
Post-test mean	20.880	23.760	22.08	Between	998.593	2	104.640	9.145*
SD	1.7570	2.6996	4.894	Within	209.280	147	1.423	
Adjusted post-test mean	22.681	25.052	21.58	Between	209.683	2	209.683	14.294*
SD	2.36	1.96	2.25	Within	982.856	144	982.856	

\*Significance at = 0.05, Table value = 4.08

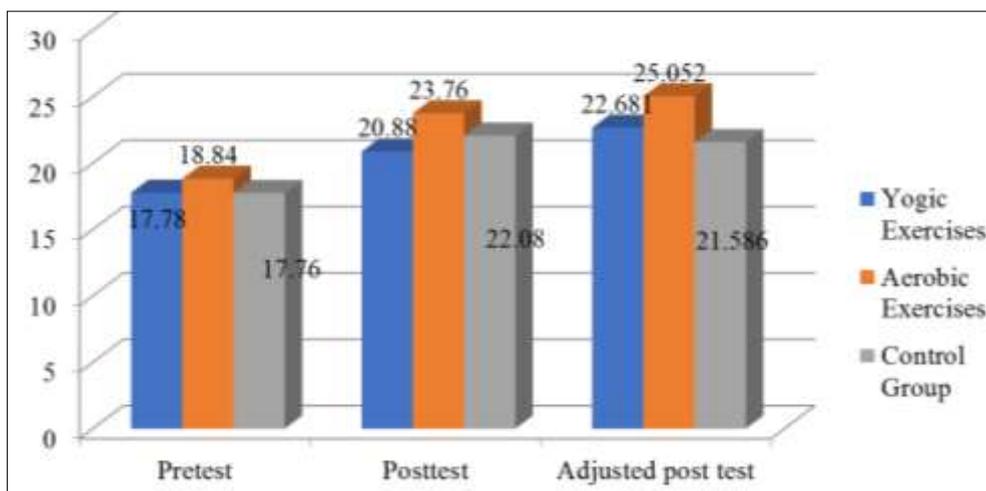
**Desiccation of findings**

It was observed that mean scores of pre-tests of Yogic Exercises, Aerobic Exercises and Control Group of Secondary School Children were 17.780, 18.840 and 17.60 and their standard deviation were 1.374, 1.299 and 4.002 respectively. The obtained 'F' Ratio value was (F=2.921, 2, 147, a=0.05) at 5% level of significance, which is less than the table value (F=4.08), hence the null hypothesis is accepted. It indicates that the muscular strength among the Yogic Exercises, aerobic Exercises and Control Group of Secondary School Children is found almost similar.

Further, shows that the post-test mean scores of muscular strength of Yogic Exercises, Aerobic Exercises and Control Group of Secondary School Children. It was observed that mean scores of post-tests of Yogic Exercises, Aerobic Exercises and Control Group of Secondary School Children were 20.800, 23.7600 and 22.0800 and their standard deviation were 1.757, 2.699 and 4.894 respectively. The obtained 'F' Ratio value is (F=9.415\*, 2, 147, a=0.05) at 5% level of significance, which is more than the table value

(F=4.08), hence the null hypothesis is rejected. It indicates that the muscular strength of Yogic Exercises, Aerobic Exercises and Control Group of Secondary School Children were found different. This indicates that muscular strength is more among the Yogic Exercises and Aerobic Exercises group when compared to the control group. Finally, it can be concluded that yogic and Aerobic Exercises treatment given to the secondary school children have made a significant impact on the muscular strength of the secondary school children.

The adjusted post-test means scores on muscular strength of Yogic Exercises, Aerobic Exercises and Control Group were 22.681, 25.052 and 21.586 respectively and their standard deviation were 2.36, 1.96 and 2.25 respectively. The obtained 'F' Ratio value is (F=14.294\*, 1,144, a=0.05) 14.294 at 5% level of significance, which is higher than the table value (F=4.08), hence the null hypothesis is rejected and alternative hypothesis is accepted. It can be concluded that there is significant difference was found between the Yogic Exercises, Aerobic Exercises with respect to muscular strength.



**Fig 1:** Figure graphical presentation on muscular strength of pre-test and post-test and adjusted post-test means of yogic exercises, aerobic exercises and control group of secondary school children

Figure gives a clear picture of the adjusted means of three training groups. Thus, it is inferred that yogic exercises and aerobic exercises training is more effective in increasing the muscular strength among the subjects, aerobic exercises were

significantly better than yogic exercises which is increasing muscular strength of the secondary school children compare to control group.

**Table 3:** Analysis of Covariance for pre-test and post -test on Flexibility of Yogic exercises, Aerobic exercises and Control Group of Secondary School Children.

Type of test	Yogic exercises	Aerobic exercises	Control group	Source of variance	Sum of the squares	Df	Mean square	F-ratio
Pre-test mean	18.9800	18.7400	18.3600	Between	9.773	2	4.887	.609
SD	2.58323	3.04262	2.85543	Within	1180.120	147	8.028	
post-test mean	21.5000	21.0800	19.6400	Between	95.160	2	47.580	11.107
SD	2.42647	1.91493	1.81558	Within	629.700	147	4.284	
Adjusted post-test means	21.869	21.264	20.254	Between	216.190	2	16.630	5.389
SD	2.223	1.879	2.2211	Within	413.510	144	3.086	

\*Significance at = 0.05, Table value = 4.08

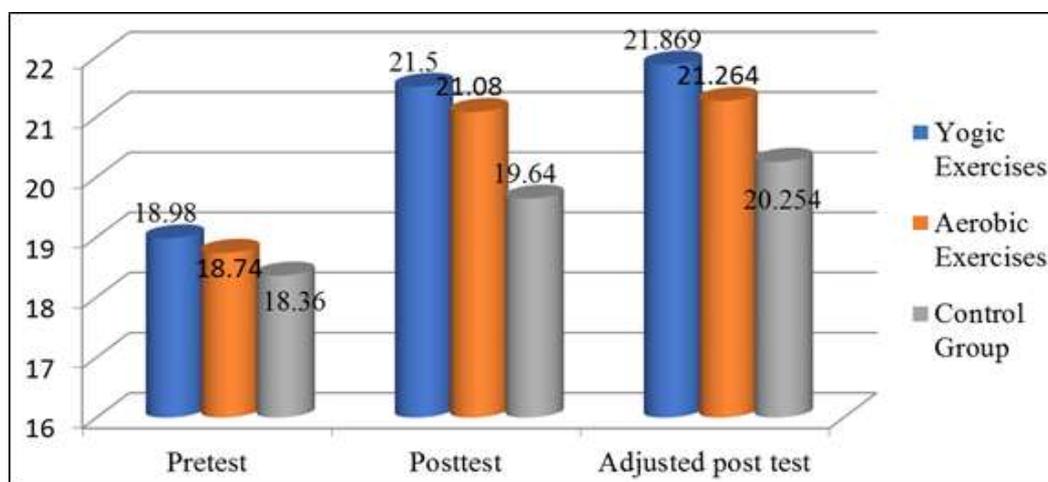
### Dictation of findings

It was observed that means scores of pre-tests of Yogic Exercises, Aerobic Exercises and Control Group of Secondary School Children were 18.9800, 18.7400 and 18.3600 and their standard deviation were 2.5832, 3.0426 and 2.8554 respectively. The obtained 'F' Ratio value is ( $F=6.09$ , 2, 147,  $\alpha=0.05$ ) at 5% level of significance, which is less than the table value ( $F=4.08$ ), hence the null hypothesis is accepted. It indicates that the Flexibility among the Yogic Exercises, Aerobic Exercises and Control Group of Secondary School Children is found almost similar.

Further, shows that the post-test means scores of Flexibility of Yogic Exercises, Aerobic Exercises and Control Group of Secondary School Children. It was observed that mean scores of post-test Yogic Exercises, Aerobic Exercises and Control Group of Secondary School Children were 21.500, 21.080 and 19.6400 and their standard deviation were 2.4264, 1.9149 and 1.8158 respectively. The obtained 'F' Ratio value is ( $F=11.107$ , 2, 147,  $\alpha=0.05$ ) at 5% level of significance, which is more than the table value ( $F=4.08$ ), hence the null

hypothesis is rejected. It indicates that the Flexibility of Yogic Exercises, Aerobic Exercises and Control Group of Secondary School Children were found different. This indicates that Flexibility is more among the Yogic Exercises and Aerobic Exercises when compared to the control Group. Finally, it can be concluded the Yogic and Aerobic treatment given to the secondary school children have made a significant impact on the flexibility of the secondary school children.

The adjusted post-test means scores on Flexibility of Yogic Exercises, Aerobic Exercises and Control Group were 21.869, 21.264 and 20.254 respectively and their standard deviation were 2.223, 1.879 and 2.221 respectively. The obtained 'F' Ratio value is ( $F=5.389$ , 1, 147,  $\alpha=0.05$ ) 5.389 at 5% level of significance, which is higher than the table value ( $F=4.08$ ), hence the null hypothesis is rejected and alternative hypothesis is accepted. It can be concluded that there is significant difference is found between the Yogic Exercises, Aerobic Exercises with respect to flexibility level of secondary school children.



**Fig 2:** Figure graphical presentation on flexibility of pre-test and post-test and adjusted post-test means of yogic exercises, aerobic exercises and control group of secondary school children

Figure gives a clear picture of the adjusted means of three training groups. Thus, it is inferred that yogic exercises and aerobic exercises training is more effective in increasing the flexibility among the subject's yogic exercises were significantly better than aerobic exercises in increasing flexibility of the secondary school children compare to control group.

### Conclusion

It was concluded that yogic exercises training and Aerobic exercises training, made a significant increasing an muscular strength of the seconder school children, in comparing that the Aerobic training and yoga training it is clear evident that aerobic training helps to develop muscular strength in comparing a with yogic exercises training. It was concluded that yogic exercises training and Aerobic exercises training, made a significant increasing an Flexibility of the seconder school children, in comparing that the Aerobic training and yoga training it is clear evident that Yogic training helps to develop Flexibility in comparing a with Aerobic exercises training.

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