

# EFFECT OF SELECTED YOGIC EXERCISES AND PHYSICAL EXERCISES ON HEALTH-RELATED PHYSICAL FITNESS COMPONENTS AMONG THE HIGHER SECONDARY GIRLS OF CHENNAI CITY

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## ABSTRACT

*The purpose of the study was to find out the effect of selected Yogic exercise and Physical exercise on Health-Related Physical Fitness Components among the Higher Secondary School girls in Chennai city. The subjects were in the age group 15 to 18 years. To achieve the purpose of the study 90 higher secondary school girls were selected from various schools of Chennai city. The selected students were selected into 3 groups Experimental group I - Yogic Exercise (N = 30), Experimental group II - Physical Exercise (N = 30), Experimental group III - Without Exercise (N = 30). The study was to find out the effect of Yogic exercise and Physical exercise on Health-related Physical fitness components among the Higher secondary girls in Chennai city. Ninety subjects were selected from different schools in Chennai city. They were divided into three groups of thirty each, namely, Experimental Group I (Training Yogic Exercise), Experimental Group II (Training Physical Exercise), and the Control Group without any training. The following statistical procedure One Way Analysis of Variables (ANOVA) for the significance difference, followed by Analysis of Co-variance (ANACOVA) was used to find out the "F" Ratio, to find out the effect of Yogic exercises and Physical exercise on Physical Fitness Components*

**Key Terms:** *Health-Related Physical Fitness, Yogic Exercises, Physical Exercises, Cardio-Vascular Endurance, Muscular Fitness, Flexibility.*

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## INTRODUCTION

Physical fitness is the ability to perform 7daily tasks vigorously and alertly with energy left over leisure time activities and meeting emergency demands. It involves the performance of the heart, lungs and muscles of the body. Fitness is an individual quality that differs from person to person. It is influenced by age, sex, heredity, personal habits and eating habits. Benefits of physical fitness are improved health, improved appearance, enhanced social life and increased stamina.

The three elements of health-related fitness are Cardio respiratory endurance, Muscular fitness and Flexibility. Endurance is the ability to stay with an activity for a long time.

- Cardio respiratory endurance is the fitness of the heart, blood vessels and lungs. It is the ability of heart, lungs and blood vessels to deliver adequate amount of oxygen efficiently to meet the demands of prolonged activity.

- Muscular fitness is the strength and endurance of the body muscles. Muscular strength is the amount of force that the muscles put out to overcome a resistance. Muscular endurance allows a person to lift, push and pull objects without unusual muscle fatigue.
- Flexibility is the ability to twist, turn, bend and stretch easily. Flexibility helps to prevent muscle pulls and strains and increase range of motion in the joints.

Regular exercise can improve health related fitness. It helps to feel and look better. Yoga is a way of life which can be practiced by any human being regardless of age, condition of health, religion or nationality; for it is based on general physical and spiritual lines which operate in mankind alike. Yogic exercise not only increase the general strength, but also tone up the muscles because these practices and will only strengthen the muscles, particularly the muscles of the legs.

### STATEMENT OF THE PROBLEM

The purpose of the study was to find out the effect of yogic exercise and physical exercise in health-related physical fitness components among Higher Secondary School girls of Chennai city, of age 15 to 18 years.

### HYPOTHESIS

- It was assumed that there will be significant difference between the groups, Experimental Group I (Training Yogic exercise), Experimental group II (Training Physical Exercise) and Control Group in the health related physical fitness variable *Cardiovascular endurance*.
- It was assumed that there will be significant difference between the groups, Experimental Group I (Training Yogic exercise), Experimental group II (Training Physical Exercise) and Control Group in the health related physical fitness variable *Muscular strength*.
- It was assumed that there will be significant difference between the groups, Experimental Group I (Training Yogic exercise), Experimental group II (Training Physical Exercise) and Control Group in the health related physical fitness variable *Explosive Power*

### METHODOLOGY

The purpose of the study was to find out the effect of selected Yogic exercise and Physical exercise on Health-Related Physical Fitness Components among the Higher Secondary School girls in Chennai city. The subjects were in the age group 15 to 18 years. The Pre-test, Post-test Equivalent group design was used. To achieve the above purpose the procedure given below as followed:

Selection of the subjects, selection of variables, reliability of the data, collection of data, and data analysis using statistical techniques.

### Selection of Subjects

To achieve the purpose of the study 90 higher secondary school girls were selected from various schools of Chennai city. The selected students were selected into 3 groups:

1. Experimental group I - Yogic Exercise (N = 30)
2. Experimental group II - Physical Exercise (N = 30)
3. Experimental group III - Without Exercise (N = 30)

**SELECTION OF VARIABLES****Yogic Exercise**

The following exercise were given to the Experimental Group I

1. Bhujangasana
2. Dhanurasana
3. Sarvangasana
4. Halasana

**Bhujangasana (Cobra Posture)**

Lying on stomach with palms on ground underneath the shoulder. Inhale as in complete yogic breathing. Supporting oneself lightly on the arms, slowly raise the head and trunk leaning backwards as far as possible, but without raising the abdominal region from the ground. Hold the position for several seconds. Then exhale slowly and gradually return to the starting position. Relax by placing the hands underneath the forehead. Repeat that exercise 2 or 3 times.

**Dhanurasana (Bow posture)**

In Sanskrit, Dhanus means Bow.

Lie on the stomach. Bend the knees and hold the ankle by hands. Raise the head and chest, and also the thighs, by tugging the hands and legs so that the spine is arched backwards like a bow. Rest the abdomen, and elbow should be kept straight. Remain in the position as long as possible, breathing regularly and directing the attention to the lower part of the spinal column. Now, relax the body gradually and return to the original position. Repeat the exercise 2 or 3 times.

**Sarvangasana (Shoulder - Stand)**

Lay on the back and relax completely. Inhale as in complete yogic breathing. Then, while exhaling, slowly raise the legs, hips and trunk in a continuous movement until vertical. Raise the legs, (knees straight) and hips by supporting the arms on the ground. Then bend the elbows and hold the trunk in hands. In this posture, the chin is buried in the sternum (upper chest). Practice abdominal respiration and retain the position for as long as comfortable. Direct the attention to the Thyroid gland. To return to the starting position, gently lower the trunk, pelvis and legs, and relax on the ground. Repeat the exercise two or three times.

**Halasana**

Lie on the back with arms stretched by the side of the body, palms flat on the ground. Raise both legs together while lying down on back. Maintain them at 30, 60, and 90 degree stage. Slowly come back to the original position and allow legs to touch the ground.

**Physical Exercise**

Physical Exercise increases Cardio vascular fitness and body endurance. Regular exercise can also help to increase the strength of our heart. It not only improves the quality of life, but also helps in the long run. Regular physical exercise is one of the simplest and most effective way to bring down blood glucose levels, cut the risk of Cardio vascular disease and improve overall health and wellbeing. It also improves the physical

fitness of the individual. Hence this variable (Physical Exercise) has attracted the researchers to study its impact on physical fitness. The following were the selected Physical exercises.

1. Short Sprints.
2. Push Ups
3. Vertical Jumps

### **Orientation of Subjects.**

Prior to the conduct of the experiments, the training methods and test procedures should be demonstrated to the subjects to ensure proper understanding and co-operation, and to measure reliable data. Demonstration was given to the subjects prior to collection of data.

### **Reliability of the Data.**

Reliability of the Data was measured by establishing the Instrument reliability, Tester reliability, Tester competency, Reliability of tests and Subject's reliability.

### **Collection of Data**

The study was to find out the effect of Yogic exercise and Physical exercise on Health-related Physical fitness components among the Higher secondary girls in Chennai city. Ninety subjects were selected from different schools in Chennai city. They were divided into three groups of thirty each, namely, **Experimental Group I** (Training Yogic Exercise), **Experimental Group II** (Training Physical Exercise), and the **Control Group** without any training.

AAHPER Test was administered to all ninety subjects initially to find out the Health-Related Physical Fitness. After the treatment of Yogic and Physical exercise for six weeks, the same AAHPER Test was administered to the subjects again to find out the Health-Related Physical Fitness.

The test items were as follows.

1. 12 minutes Run or Walk (To test the Cardio respiratory endurance).
2. Sit and Reach (To test the muscular strength).
3. Standing Broad Jump (To test the explosive power of legs).

### **Facilities and Equipment**

Flags are placed around the track at 40 yards intervals.

#### **1. 12 Minute Run or Walk.**

The purpose of this test is to measure the endurance.

### **Procedure**

The observing partner is instructed to count the number of laps run within the allotted time. When 11 minutes are elapsed, the instructor calls out the time left to run. At the end of 12 minutes the instructor blows the whistle and the runner notes the flag she has just passed.

### **Scoring**

The observing partner gives the runner the number of completed laps she has run. The runner reports the score in terms of number of flags passed on the last lap.

## 2. Sit and Reach

The purpose of Sit and Reach is to measure muscular fitness.

### Procedure

Take a long sitting position. A measuring scale is kept between the legs from the heel. The subject has to bring both arms from back stretch, and bending the trunk, try to touch the scale at the maximum bend with the middle finger. While touching the measuring scale, the knees should be straight. Maximum distance touched on the scale is taken.

## 3. Standing Broad Jump

### Facilities and Equipment

An outdoor jumping pit and a measuring tape

### Procedure

The subject places her feet several inches apart, and the toes just behind the take off line in preparation for jump the subject swings the arms backwards and bends the knees. The jump is accomplished by simultaneously extending the knees and swinging the arms forward.

### Rules

1. Three trials are given.
2. The measurement is done from the take off line to the point where body touches the pit nearest to the take off line.

### Scoring.

The best of the three trials is measured in feet and inches.

### Statistical analysis.

The following statistical procedure was followed to find out the effect of Yogic exercises and Physical exercise on Physical Fitness Components. The researcher used One Way Analysis of Variables (ANOVA) for the significance difference, followed by Analysis of Co-variance (ANACOVA) to find out the "F" Ratio cited by Garret Woodworth. The results are given in Tables I, II, III and IV.

**RESULTS AND DISCUSSIONS****Table 1. ANOVA for 12 Minutes Run or Walk**

Source of Variance	df	SSx	SSy	MSx(Vx)	MSy(Vy)	Fx	Fy
Between M(k-1)	2	86480712	9013694.58	4324036	4506847.3	0.1665	0.1658
Within G(k-1)	237	6189052229	6439426285	261141.4	27170575		
Total	239	6197700300	6448439980				
F <sub>x</sub> =0.1665	Table value at 0.05 is 3.06						
F <sub>y</sub> =0.1658	Table value at 0.01 is 4.71						

F<sub>x</sub> & F<sub>y</sub> are < than the table value at .05 and .01 levels. So, they are insignificant.

**Table 2. Analysis of Co-Variance**

Source of Variance	df	SSx	SSy	SSxy	SSy.x	MSy.x	S.Dy.x
Between M(k-1)	2	86480712	9013694.58	8826051	8902575	4451288	5223.5
Within G(k-1)	236	6189052229	6439426285	34696989	6439231767	2728480	
Total	238	6197700300	6448439980	43523040	6448134342		

F-Ratio = 0.16314 is less than the required table value. So, they are insignificant.

**Table 3. ANOVA for Sit and Reach Test**

Source of Variance	df	SSx	SSy	MSx(Vx)	MSy(Vy)	Fx	Fy
Between M(k-1)	2	308.753	405.283	154.376	202.641	0.1658	0.170
Within G(k-1)	237	220607.92	282500.02	930.835	1191.983		
Total	239	220916.67	282905.3				
F <sub>x</sub> =0.1665	Table value at 0.05 is 3.06						
F <sub>y</sub> =0.1658	Table value at 0.01 is 4.71						

F<sub>x</sub> & F<sub>y</sub> are < than the table value at .05 and .01 levels. So, they are insignificant.

**Table 4. Analysis of Co-Variance**

Source of Variance	df	SSx	SSy	SSxy	SSy.x	MSy.x	S.Dy.x
Between M(k-1)	2	308.753	405.283	355.506	390.42	195.21	34.59
Within G(k-1)	236	220607.92	282500.02	4477.484	282409.15	1196.648	
Total	238	220916.67	282905.3	4832.99	282799.57		

F-Ratio = 0.1631 is less than the required table value. So, they are insignificant.

**Table 5. ANOVA for Standing Broad Jump**

Source of Variance	df	SSx	SSy	MSx(Vx)	MSy(Vy)	Fx	Fy
Between M(k-1)	2	85917.35	88560.897	42958.675	44280.449	0.1655	0.1655
Within G(k-1)	237	61514565	63390094	259555.13	267468.75		
Total	239	61600482	63478655				
F <sub>x</sub> =0.1665	Table value at 0.05 is 3.06						
F <sub>y</sub> =0.1658	Table value at 0.01 is 4.71						

F<sub>x</sub> & F<sub>y</sub> are < than the table value at .05 and .01 levels. So, they are insignificant.

**Table 6. Analysis of Co-Variance**

Source of Variance	df	SSx	SSy	SSxy	SSy.x	MSy.x	S.Dy.x
Between M(k-1)	2	85917.35	88560.897	87211.882	87447	43723.5	518.26
Within G(k-1)	236	61514565	63390094	350709.78	63388095	268593.82	
Total	238	61600482	63478655	437921.67	63475542		

F-Ratio = 0.1627 is less than the required table value. So, they are insignificant.

**Table 7. Showing the obtained ANACOVA Value for the Health-Related Physical Fitness Variables**

Sl. No.	Health-Related Physical Fitness Variables	Test Items	F-Ratio
1	Cardio Vascular Endurance	12 minutes run / walk	0.16314
2	Muscular Strength	Sit and reach	0.1631
3	Explosive Power	Standing Broad jump	0.1627

## CONCLUSIONS

It was evident from the results that six weeks training programme given to the groups having less physical fitness had not made any significant difference.

- There was no significant difference between the groups, ie, Experimental Group I (Training Yogic Exercise), Experimental Group II (Training Physical Exercise) and Control Group, as obtained 'F' Value of 0. 1634 for the Cardiovascular Endurance was less than the Table Value of 3.06, to be significant at 0.05 level.
- There was no significant difference between the groups, ie, Experimental Group I (Training Yogic Exercise), Experimental Group II (Training Physical Exercise) and Control Group, as obtained 'F' Value of 0. 1631 for the Physical Fitness Variable Muscular strength measured by Sit and Reach was less than the Table Value of 3.06, to be significant at 0.05 level.
- There was no significant difference between the groups, ie, Experimental Group I (Training Yogic Exercise), Experimental Group II (Training Physical Exercise) and Control Group, as obtained 'F' Value of 0. 1627 for the Physical Fitness Variable Explosive Power, which was measured by Standing Broad Jump was less than the Table Value of 3.06, to be significant at 0.05 level.

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