



**ORIGINAL RESEARCH PAPER**

**Physical Education**

**EFFECT OF YOGA ON PHYSICAL FITNESS VARIABLES OF COLLEGE GOING FEMALE STUDENTS**

**KEY WORDS:** Yogasana, Physical fitness variables, College going students.

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**ABSTRACT**

**INTRODUCTION:-** The word 'yoga' is derived from the roots of Sanskrit 'Yuj' which means to join, to attach, to bind, yoke and a concentrate or one attention. Practice of Yoga would directly contribute to human resource development and improvement in the quality of life by developing their fitness (Physical, mental, emotional as well as spiritual). **PURPOSE:-** purpose of the study was to find out the effect of Yogasana on physical fitness variables of college going female students. **MATERIALS & METHODS:-** To achieve the purpose, total Fifty (50) college going female students age range between 18-21 years were randomly selected for the study from Fakir Chand College (University of Calcutta), Diamond Harbour, South 24 Parganas, West Bengal. The physical fitness variables were flexibility, cardio-vascular endurance, abdominal muscle strength, body fat % and speed. They were measured by sit and reach test, 1 mile run and walk test, sit ups, skin fold calliper and 50 yard dash test respectively. The subjects were divided into two groups. One group was utilized as the control group and the other as experimental group. Each group contains twenty five (25) subjects. The Experimental group (yoga group) has been given the eight (8) weeks yoga training in the college campus. The training schedule were fixed in the morning session as well as in the afternoon session minimum time duration 45-60 minutes per session with various types of yogasanas including slow warming up, warm down and resting time between the set of the exercises. On the other hand, Control group (Non-yoga group) has not given the yoga training. The Pre-test and post-test mean scores of the two groups have been taken and their scores have been recorded. The Independent Paired-'t' test is conducted for evaluate the data and the level of significance is fixed at 0.05 level of confidence. **RESULTS & DISCUSSION:-** The data was analyzed statistically by computing mean, standard deviation and 't' test. It was observed from the tables that in the experimental group the pre-test mean scores of physical fitness variables were 5.20, 10.20, 11.02, 20.10 and 10.10 respectively which are improved in post-test, they were 7.30, 8.40, 15.62, 16.80 and 8.60 respectively except speed. Similarly, in the control group the pre-test mean scores of physical fitness variables were 7.20, 15.30, 12.80, 20.26 and 10.20 respectively which are slightly changed in post-test that is 8.50, 13.90, 14.10, 18.86 and 9.10 respectively. It was also evident from the table that the calculated value of the each variable in the control group is less than the Table value at 0.05 level of significant. So the result was insignificant. On the other hand, calculated value of the each physical fitness variable is more than the table value at 0.05 level of significant in the experimental group except speed. So the result was significant The hypothesis was tested at 0.05 level of confidence. **CONCLUSION:-** On the basis of the obtained result, it has been observed that the experimental group has the better physical fitness than the control group except speed due to eight (8) weeks yoga training programmes.

**INTRODUCTION:-**

Yoga is an ancient Indian philosophy. It is derived from the roots of Sanskrit 'Yuj' which means to join, to attach, to bind, yoke, and a concentrate or one attention. It also means Union. Yoga is true union of our will with the will have had. The literal meaning of the word 'Yoga' is 'yoke'. It means for uniting the individual spirit with the Universal spirit or God. It is a science by which the individual approaches the truth. Yoga is not religion it is a method by which one obtain Control of one's latent powers. It is the means to reach complete Self-Realization. Yoga is a reduction of one's mental process, along with the physical. Practice of Yoga would directly contribute to human resource development and improvement in the quality of life by developing their fitness (Physical, mental, emotional as well as spiritual). Yoga is an instrument of self-evolvment and enlightenment through the physical and mental well-being. It enhances the quality of life by improving motor ability.

Body Composition is the relative percentage of muscle, fat, bone and other tissues of which the body is composed. Various research studies revealed that Participation in physical activities and various games and sports helps in improving the Physical fitness by lowering Percentage of Body Fat and increasing the Lean Body Mass. Physical fitness is the product of physical exercises and exercise is very much related to health and wellbeing.

The world is becoming more and more competitive. Quality of performance has become the key factor for personal progress. Better Motor Ability means high level of physical

fitness which helps in the positive self perception and improves the total performance. **According to Nixon, "Physical Fitness refers to the organic capacity of the individual to perform the normal task of daily living without undue fatigue or tiredness having reserves of strength and energy available to meet satisfactorily any emergency demands suddenly placed upon him."** Total fitness looks at the overall individual, combining the absolute levels of physiological, psychological, social and cognitive fitness. Our nation is becoming more concerned with physical fitness. People want quality in life, and adults particularly are becoming more concerned about their health and fitness life style. Yoga will help them cope and emerge stronger and more physically, mentally and emotionally fit. Thus, **the present study examines the effect of 8 weeks yoga training on physical fitness variables of school going students.**

**PURPOSE OF THE STUDY:-**

The purpose of the study was to analyze the effect of eight (8) weeks yoga training on physical fitness variables of college going female students.

**HYPOTHESES:-**

- i) There would be a significant improvement in flexibility among the college going female students due to yoga training.
- ii) Yoga training helps to improve the abdominal muscles strength of the students.
- iii) Yoga training maintains the normal body fat percentage of the selected students.

- iv) There would be a significant improvement in cardio-vascular endurance among the college going female students.
- v) Yoga training may not improve the speed significantly of the college going female students.

**METHODOLOGY:-**

**SUBJECTS:-** Total fifty (50) college going female students were randomly selected for the study from Fakir Chand College (University of Calcutta), Diamond Harbour, South 24 Parganas, West Bengal. They were divided into two groups. One group was considered as the control group and the other as the experimental group. Each group contains twenty five (25) subjects. The physical fitness variables were flexibility, cardio-vascular endurance, abdominal muscle strength, body fat % and speed.

**PROCEDURE:-** Total fifty (50) college going female students were randomly selected for the study. They were divided into two groups. One group was utilized as the control group and the other as the experimental group. Each group contains twenty five (25) subjects. In the Experimental group, yoga training was given for eight weeks in the college campus. The training schedule were fixed in the morning session as well as in the afternoon session minimum time duration 45-60 minutes per session with various types of yogasanas including slow warming up, warm down and resting time between and set of exercises. On the other hand, Control group (Non-yoga group) has not given the yoga training. The physical fitness variables were flexibility, cardio-vascular endurance, abdominal muscle strength, body fat % and speed. They were measured by sit and reach test, 1 mile run and walk test, sit ups, skin fold calliper and 50 yard dash test respectively. The Pre-test and post-test mean scores of the two groups have been taken and their scores are recorded.

**STATISTICAL ANALYSIS:-** The Independent Paired-'t' test was conducted for evaluate the data and the level of significance was fixed at 0.05 level of confidence. To get the final result Mean, SD, Mean Difference and 't'-test were calculated.

**SCHEDULE OF YOGA PRACTICES :-**

1. Bhujangasana
2. Ardh-Shalabhasana
3. Ardh-Halāsana
4. Vakrasana
5. Chakrasana
6. Paschimottan
7. Dhanurasana
8. Shavasana
9. Halāsana,
10. Ardh-Matsyēdrāsana
11. Shalabhasana,
12. Viparītkarāni
13. Naukasana,
14. Parvatasana
15. Makrasana,
16. Kapalbhati
17. Anulom-Vilom,
18. Meditation.

**SELECTED VARIABLES & THEIR TEST AND UNITS:-**

| SL. NO. | FITNESS VARIABLES         | TESTS                    | UNITS   |
|---------|---------------------------|--------------------------|---------|
| 1.      | Flexibility               | Sit and reach test       | Cm.     |
| 2.      | Cardiovascular Endurance  | 1 mile run and Walk test | Min/Sec |
| 3.      | Abdominal muscle strength | Sit ups.                 | No/Min. |
| 4.      | Body fat %                | Skin fold calliper.      | Mm.     |
| 5.      | Speed                     | 50 Yard dash test.       | Sec.    |

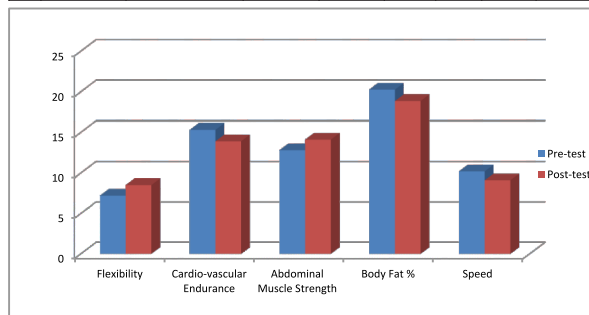
**RESULTS:-**

The result of the study is discussed under the following table

with the graphical presentation. Table-1 and 2 show the significant difference between pre-test and post-test scores of the subjects on physical fitness variables among the control group and experimental group.

**Table - 1 Significant Difference Between Pre-test And Post-test On Physical Fitness Variables Of The Control Group After Calculating The Mean, Sd And T-ratio Of College Going Female Students:-**

| Sl. | Group         | Variables                 | Test        | Mean  | SD   | MD   | t-ratio | Sig.  |
|-----|---------------|---------------------------|-------------|-------|------|------|---------|-------|
| 1.  | Control Group | Flexibility               | Pre - test  | 7.20  | 1.52 | 1.30 | 1.27    | 0.05* |
|     |               |                           | Post - test | 8.50  | 1.25 |      |         |       |
|     |               | Cardiovascular Endurance  | Pre - test  | 15.30 | 2.08 | 1.40 | 1.45    |       |
|     |               |                           | Post - test | 13.90 | 2.25 |      |         |       |
|     |               | Abdominal muscle strength | Pre - test  | 12.80 | 2.12 | 1.30 | 1.61    |       |
|     |               |                           | Post - test | 14.10 | 2.02 |      |         |       |
|     |               | Body fat %                | Pre - test  | 20.26 | 2.35 | 1.40 | 1.05    |       |
|     |               |                           | Post - test | 18.86 | 2.86 |      |         |       |
|     |               | Speed                     | Pre - test  | 10.20 | 2.44 | 1.10 | 1.02    |       |
|     |               |                           | Post - test | 9.10  | 2.04 |      |         |       |



**Fig.1:-Graph Showing the Significant Difference between Pre-test and Post-test on physical fitness variables of the control group of college going female students.**

**Table-2 Significance Difference Between Pre-test And Post-test On Physical Fitness Variables Of The Experimental Group After Calculating The Mean, Sd And T-ratio Of Collage Going Female Students.**

| Sl. | Group              | Variables                 | Test        | Mean  | SD   | MD   | t-ratio | Sig.  |
|-----|--------------------|---------------------------|-------------|-------|------|------|---------|-------|
| 2.  | Experimental Group | Flexibility               | Pre - test  | 5.20  | 1.89 | 2.10 | 2.28    | 0.05* |
|     |                    |                           | Post - test | 7.30  | 2.09 |      |         |       |
|     |                    | Cardiovascular Endurance  | Pre - test  | 10.20 | 1.88 | 1.80 | 2.55    |       |
|     |                    |                           | Post - test | 8.40  | 2.15 |      |         |       |
|     |                    | Abdominal muscle strength | Pre - test  | 11.02 | 2.12 | 4.60 | 3.82    |       |
|     |                    |                           | Post - test | 15.62 | 2.08 |      |         |       |
|     |                    | Body fat %                | Pre - test  | 20.10 | 2.06 | 3.30 | 2.88    |       |
|     |                    |                           | Post - test | 16.80 | 2.20 |      |         |       |

|  |              |                  |              |             |             |             |  |
|--|--------------|------------------|--------------|-------------|-------------|-------------|--|
|  | <b>Speed</b> | <b>Pre-test</b>  | <b>10.10</b> | <b>2.22</b> | <b>1.50</b> | <b>0.98</b> |  |
|  |              | <b>Post-test</b> | <b>8.60</b>  | <b>2.16</b> |             | <b>NS</b>   |  |

Significant at 0.05 level

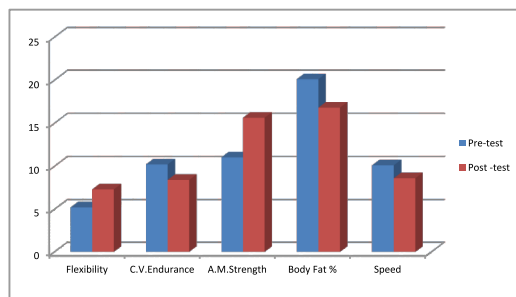


Fig.2:-Graph Showing the Significant Difference between Pre-test and Post-test on physical fitness variables of the Experimental group of college going female students.

**DISCUSSION:-**

It was observed from the above tables that in the experimental group the pre-test mean scores of physical fitness variables were 5.20, 10.20, 11.02, 20.10 and 10.10 respectively which are improved in post-test, they were 7.30, 8.40, 15.62, 16.80 and 8.60 respectively except speed. Similarly, in the control group the pre-test mean scores of physical fitness variables were 7.20, 15.30, 12.80, 20.26 and 10.20 respectively which are slightly changed in post-test that is 8.50, 13.90, 14.10, 18.86 and 9.10 respectively. It is also evident from the above table that the calculated value of the each variable in the control group is less than the Table value at 0.05 level of significant. So the result was insignificant. On the other hand, calculated value of the each physical fitness variable is more than the table value at 0.05 level of significant in the experimental group except speed. The hypothesis is accepted since there was a significant improvement in flexibility, cardio-vascular endurance, and abdominal muscle strength and body fat % of the experimental group due to 6 weeks of yoga training.

Meditation or Dhyana, a part of Astanga yoga plays an important role for reduce the stress and anxiety which have been reported by **Anderson and Freshman (1982), Nagendra, Deshpande and Raghuram (2009), Morison and Ibrahim (1981) and Yadhav (2006)**. In this study, Meditation reduced stress significantly after six months of yoga treatment. Meditation have a greater impact on mind and the senses than other exercises with the result that meditation helps to develop one's physical and mental powers to make the mind clam and control the emotion. Yoga involves and includes eight paths (i.e. **Astanga yoga – yama, niyama, asana, pranayama, pratyahara, dharana, dhyana and Samadhi.**). The astanga yoga is based on the idealistic approach, a real road to attain good consciousness, self confidence and self-concept. Meditation helps the individual to overcome these emotions to facilitate a calm, peaceful mind and healthy and stress free body. It promotes relaxation, develops self-concept, self confidence, positive attitude and social ability and reduces stress as well as anxiety. Excessive stress and anxiety hamper the students' performance. Better Motor Ability means high level of physical fitness which helps in the positive self perception and improves the total fitness. Yoga will help them to cope and emerge stronger and more physically, mentally and emotionally fit. Hence, the researcher was motivated to take up the present study.

**CONCLUSION:-**

Many research studies have been done on the various types of training programmes. It is proved that eight weeks (8) yoga training programmes have a significant role on the physical

fitness variables of the college going female students. On the basis of the results obtained from the present empirical investigation and within the limitation, the following conclusions may be drawn.

1. In the Experimental group (yoga group) the physical fitness variables were better after the given period of eight weeks (8) yoga training and the result was significant except speed.
2. On the other hand, in the Control group (Non-yoga group) the physical fitness variables were not better or slightly changed after the given period of eight weeks (8) yoga training and the result was insignificant.

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