

## "EFFECT OF AEROBIC EXERCISES ON PHYSICAL FITNESS OF ADULTS".

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### Abstract:

*Since physical education has been particularly concerned with the character development aspect of games and sports, no one would doubt that sports are a special type of games. Which was defined by Lay as "Any form of playful competition whose outcome is determined by physical skill, strategy or chance employed singly or in combination" (Lay 1969).*

### KEYWORDS:

Aerobic Exercises , Physical Fitness , physical skill , strategy.

### INTRODUCTION

#### Aerobic Exercise

Aerobic exercise is physical [exercise](#) of relatively low intensity and long duration, which depends primarily on the aerobic energy system. Aerobic means "with [oxygen](#)", and refers to the use of oxygen in the body's metabolic or [energy](#)-generating process. Many types of exercise are aerobic, and by definition are performed at moderate levels of intensity for extended periods of time.

#### Physical Fitness

The concept of physical fitness has become a point of attention in our country. The Govt. as well as the people are becoming aware of its importance in present day living because fitness is essential to increase productivity power of labor in every respect of development. Various schemes have been launched by the Govt. of India to improve physical fitness of its citizen and to create interest among the people towards such activities which may ultimately improve their fitness. Man's personality is the total picture of his organized behavior. For the development of personality, the individual should be physically fit, mentally alert, emotionally matured and socially adjusted.

#### 1.1 Statement of the Problem

The researcher is the student of physical education and is well aware that exercises plays very important role in maintaining the physical fitness of an individual. Also the researcher has a little bit knowledge about the aerobic exercise. The researcher used to check the effect of aerobic exercise on physical fitness of adults. All these created interest in the researcher. Under taken the problem title on "Effect of Aerobic Exercises on selected Physical Fitness components of Adults".

#### 1.2 Purpose of the Study

The objective of the study is as follows:

- 1.To see the effect of aerobic training on selected physical fitness variables between control and Experimental group of adults.
- 2.To assess the aerobic training on vital capacity and body mass index among the adults

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**"EFFECT OF AEROBIC EXERCISES ON PHYSICAL FITNESS OF ADULTS".**

**1.3 Significance of the Study**

The study would be significant in the following aspects-

- i) The result of this study may help the adults to know the aerobic effect on physical fitness.
- ii) To devise specific aerobic training programme for adults.

**1.4 Hypothesis**

Researcher hypothesized that; there would be significant difference as a result of aerobic exercise on selected physical fitness variables of adults.

**1.5 Delimitation**

- i. The study was delimited to the 30 adults of Yavatmal city.
- ii. The age of subjects was ranging between 18 to 25 years.
- iii. The study was confined only to the general aerobic exercises.
- iv. The study was further delimited to physical fitness variables i.e. cardio-vascular endurance, flexibility, vital capacity, Body Mass Index (Height & Weight).

**1.6 Limitation**

- i. The daily routine life of the subjects was not considered.
- ii. Other physical activities by the subject which was not taken under the control of scholar.
- iii. Control on diet of the subjects was not taken under the control of scholar.
- iv. Medical treatment on the subjects was not considered.

**METHODOLOGY**

This chapter includes the information regarding selection of subjects; sources of data, sampling procedures, selection of test, criterion measures, collection of data and administration of test have been described.

**2.1 Selection of Subjects**

30 adults were selected as subjects from Yavatmal city and their age was ranging between 18 to 25 years.

**2.2 Sampling Procedure**

Simple random sampling method was employed for the selection of subjects for the study.

**2.3 Formation of Groups**

The researcher divided the 30 adults into two equal groups on the basis of the mean performance of pre-test score. The groups were equated and distributed into two homogeneous groups namely.

- 1) Experimental Group
- 2) Control Group

**2.4 Criterion Measures**

Following criterion measures was selected for testing the hypothesis on present study.

- 1. Cardio-vascular Endurance
- 2. Flexibility
- 3. Vital Capacity
- 4. Body Mass Index

**2.5 Administration of the Test**

- 1) 600 Yard Run/Walk:

Purpose: To measure the Cardio-vascular Endurance of adult

Equipment: Marked track, stop watches, score card etc.

Description: The subject used a standing start. At the signal, "ready", "go", the subjects started to run 600 yards distance. The running was allowed to be interspersed with walking. The timer called out the time as the subjects cross the finishing line. Walking was permitted but the subject was to cover the distance in the shortest possible time.

Scoring: Time was recorded in minutes and second is as the score for endurance.

**"EFFECT OF AEROBIC EXERCISES ON PHYSICAL FITNESS OF ADULTS".**

**2) Sit and Reach Test:**

Purpose: To measure back and leg muscles. It was a kind of absolute and linear test of flexibility.

Equipment: A testing box or flex measure and a yard stick.

**Procedure:**

The subject asked to remove shoes and place his/her feet against the testing box while sitting on the floor with straight kneed. Now the subject asked to place one hand on top of the other, so that the middle fingers of both hands are together at the same length. The tester keeps his hand on the kneed of the subject to keep them straight not allowing any bending of the knee. The subjects instructed to lean forwards and place his hands over the measuring scale lying on the top of the box with its 10 inch mark concluding with the front edge of testing box. Then the subject asked to slide his/her hands along the measuring scale as far as possible without bounding and to hold to further position for at least one second.

Score: Each subject was given three trials and the highest score nearest to an inch was recorded.

**3) Vital Capacity:**

Purpose: To measure the Vital Capacity.

Instrument: Dry spirometer

**Procedure:**

After a couple of normal breath the subject was asked to take a deep breath and exhale into spirometer as forcefully as possible.

Scoring: The highest of the three consecutive trials with rest of one minute after each trail was recorded in the unit of liter.

**4) Body Mass Index:**

a)Weight - Total body weight was recorded in Kg by using standard weighing machine.

b)Height- Height was recorded in centimeters and converted into meters by using Wall Scale.

Body Mass Index (BMI) =

Purpose: To measure the Body Mass Index of the subjects.

Instruments: Calibrated weighing machine.

Procedure: The weight of the subject was taken by laboratory anthropometric weighing machine. The subject wearing shorts and vest only stood at the center of the machine and the weight was recorded from the indicator needle of the dial.

Scoring: The weight was recorded in kilograms.

**2.6 Training Program**

**6 Week Training Program**

| Week          | Aerobic Exercise & Duration   | Recovery                     | Total Volume        |
|---------------|---|------------------------------|---------------------|
| I & II Week   | Walking 10 min<br>Slow Running 5 min<br>Running 5 min<br>Cycling 5 min<br>Dancing 5 min     | In every exercise 1 min rest | Approx. 40 min      |
| III & IV Week | Walking 15 min<br>Slow Running 8 min<br>Running 8 min<br>Cycling 8 min<br>Dancing 8 min     | In every exercise 3 min rest | Approx. 1 Hr        |
| V & VI Week   | Walking 20 min<br>Slow Running 10 min<br>Running 10 min<br>Cycling 10 min<br>Dancing 10 min | In every exercise 5 min rest | Approx. 1 Hr 20 min |

**"EFFECT OF AEROBIC EXERCISES ON PHYSICAL FITNESS OF ADULTS".**

Warm up and cool down was 15 min and 10 min on every day. Training program was 6 days in a week and on Sunday total rest.

**2.7 Collection of Data**

For data collection two test was conducted 1) Pre-test: A Pre-test was conducted for knowing the equal distribution of both the group ie. two Experimental groups and Control group. 2) Post-test: After six weeks training programmed final test was conducted for the final result collected pre-test and post test data was further put for analysis.

**ANALYSIS AND INTERPRETATION OF DATA**

The researcher conducted a study on effect of Aerobic exercises on Physical Fitness of Adults. For the purpose of this study the researcher collected data on 30 adults of Yavatmal city.

**3.1 Analysis of Data**

To determine the significant difference in the means of Physical Fitness adults between the two groups as well as between the pre-test and post test means of experimental and control group t-test was employed.

**3.2 Level of Significance**

To find out the significance difference, level of significance was set at 0.05 level of confidence. Findings of the statistical analysis have been shown in the following tables,

**Table-1**  
**Summary of Mean, Standard Deviation and t-ratio for the Data on Cardiovascular Endurance (600 Yard Run & Walk) Between the Means of Post-tests of Control and Experimental Group**

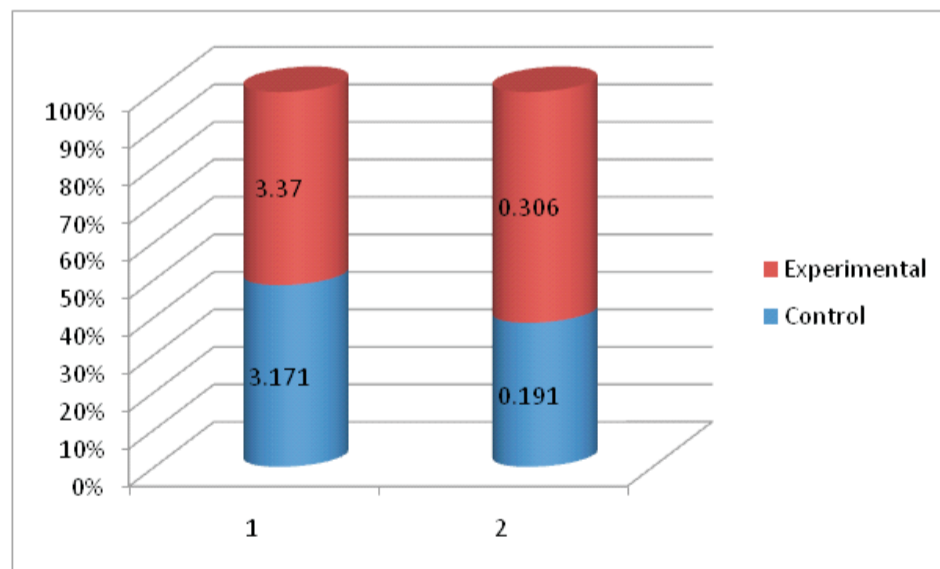
| Group        | Mean  | Standard Deviation | Mean Difference | Standard Error | t-ratio |
|--------------|-------|--------------------|-----------------|----------------|---------|
| Control      | 3.171 | 0.191              | 0.201           | 0.093          | 2.153*  |
| Experimental | 3.370 | 0.306              |                 |                |         |

\* Significant at 0.05 level

Tabulated  $t_{0.05 (38)} = 2.048$

The above table 9 show that, Cardio-vascular endurance means difference between the post-test of Control and Experimental group is significant, because the calculated t-value of 2.153 is greater than the tabulated t-value of 2.048 at 0.05 level of confidence of 38 degree of freedom.

**Graphical Representation on Pre-Test, Post Test of cardiovascular endurance ability of control and Experimental group**



"EFFECT OF AEROBIC EXERCISES ON PHYSICAL FITNESS OF ADULTS".

**Table-2**  
**Summary of Mean, Standard Deviation and t-ratio for the Data on Sit & Reach Test Between the Means of Post-tests of Control and Experimental Group**

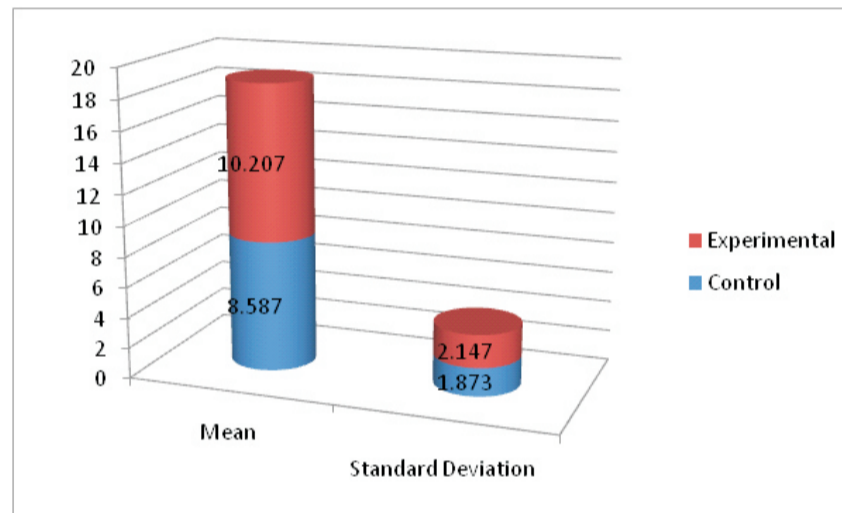
| Group        | Mean   | Standard Deviation | Mean Difference | Standard Error | t-ratio |
|--------------|--------|--------------------|-----------------|----------------|---------|
| Control      | 8.587  | 1.873              | 1.620           | 0.736          | 2.202*  |
| Experimental | 10.207 | 2.147              |                 |                |         |

\* Significant at 0.05 level

Tabulated  $t_{0.05 (38)} = 2.048$

The above table 10 show that, Sit & Reach Test means difference between the post-test of Control and Experimental group is significant, because the calculated t-value of 2.202 is greater than the tabulated t-value of 2.048 at 0.05 level of confidence of 38 degree of freedom.

**Graphical Representation on Pre-Test, Post Test of Flexibility ability of control and Experimental group**



**Table-3**  
**Summary of Mean, Standard Deviation and t-ratio for the Data on Vital Capacity Between the Means of Post-tests of Control and Experimental Group**

| Group        | Mean    | Standard Deviation | Mean Difference | Standard Error | t-ratio |
|--------------|---------|--------------------|-----------------|----------------|---------|
| Control      | 977.067 | 26.890             | 19.133          | 9.040          | 2.116*  |
| Experimental | 996.200 | 22.425             |                 |                |         |

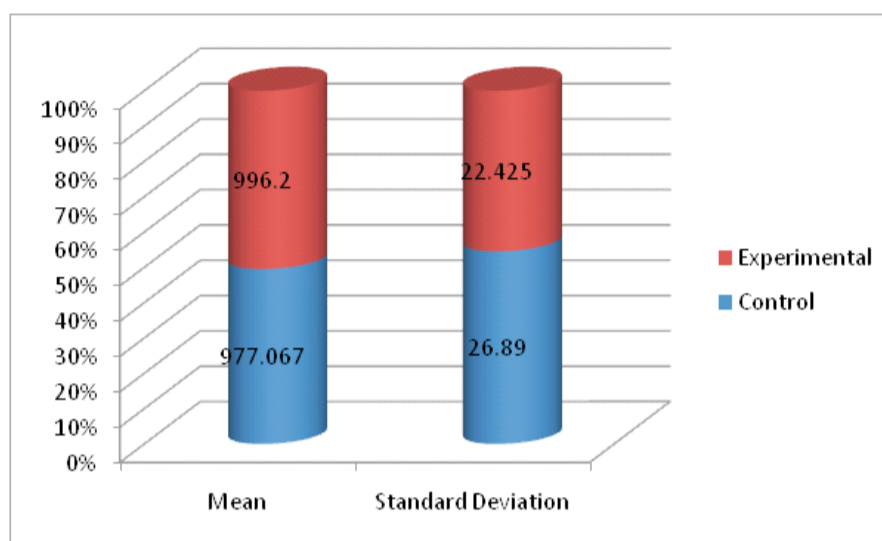
\* Significant at 0.05 level

Tabulated  $t_{0.05 (38)} = 2.048$

The above table 11 shows that, Vital Capacity means difference between the post-test of Experimental group is significant, because the calculated t-value of 2.116 is greater than the tabulated t-value of 2.048 at 0.05 level of confidence of 38 degree of freedom.

**Graphical Representation on Pre-Test, Post Test of Flexibility ability of control and Experimental group**

"EFFECT OF AEROBIC EXERCISES ON PHYSICAL FITNESS OF ADULTS".



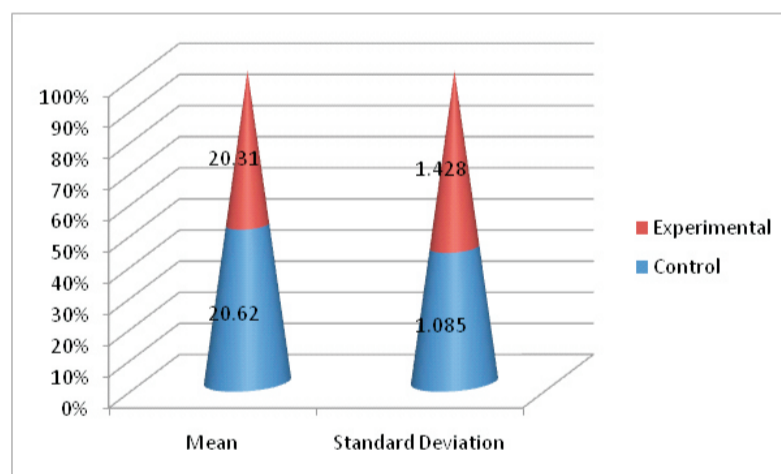
**Table-4**  
**Summary of Mean, Standard Deviation and t-ratio for the Data on Body Mass Index Between the Means of Pre and Post-tests of Experimental Group**

| Group        | Mean   | Standard Deviation | Mean Difference | Standard Error | t-ratio            |
|--------------|--------|--------------------|-----------------|----------------|--------------------|
| Control      | 20.620 | 1.085              | 0.310           | 0.463          | 0.670 <sup>@</sup> |
| Experimental | 20.310 | 1.428              |                 |                |                    |

<sup>@</sup> Not significant at 0.05 level

Tabulated  $t_{0.05(38)} = 2.048$

The above Table 12 show that, Body Mass Index mean difference between the pre-test and post-test of Experimental group is not significant, because the calculated t-value of 0.670 is less than the tabulated t-value of 2.048 at 0.05 level of confidence of 38 degree of freedom.



**4.DISCUSSION ON FINDINGS**

5. Significant difference examined between post test of Control and Experimental group in Cardio-vascular Endurance ( $t = 2.153$ ), Sit & Reach Test ( $t = 2.202$ ) and Vital Capacity ( $t = 2.116$ ) because all t values are less than the tabulated t-value 2.048 at 0.05 level of confidence of 38 degree of freedom. But Insignificant difference observed in Body Mass Index ( $tab\ t_{0.05(38)} = 2.048 > t = 0.670$ ).

## "EFFECT OF AEROBIC EXERCISES ON PHYSICAL FITNESS OF ADULTS".

### 4.4 Justification of Hypothesis

Researcher hypothesis stated earlier that, there would be significant difference as a result of aerobic exercise on selected adults. From the above findings significant difference observed in all variables of post test of Control and Experimental group. Hence the researcher stated hypothesis is partially accepted.

## 5. CONCLUSION AND RECOMMENDATION

### 5.1 Conclusion

On the basis of findings the researcher concluded that,

- Significant difference examined between post test of Control and Experimental group in Cardio-vascular Endurance, Sit & Reach Test and Vital Capacity, but insignificant difference observed in Body Mass Index.

### 5.2 Recommendation

According to conclusion and findings the researcher gives some recommendations as-

- Training of aerobic exercise is effective on the Cardio-vascular Endurance, Sit & Reach Test, and Vital Capacity.
- If we increase the duration of training programme may gives significant difference in Body Mass Index.
- Similar study may conduct on the girls also.
- Similar study may conduct on the players also.
- Similar study may conduct on different age groups.
- Similar study may conduct on different level of players.

## References

1. Deborah B. Dowdy Et. Al. "Effect Of Aerobic Dance On Physical Work Capacity, Cardiovascular Function And Body Composition Of Middle Aged Women", Research Quarterly, Vol.56, No.3, March, 1985, p.127.
2. Miller Audrey, "Effect of Endurance training on the cardiovascular system and body composition of sown syndrome adolescents and young adults". Dissertation abstracts international. Vol. 46, No. 6, December 1985, p.1554-A.
3. P. N. Ghodmare, "Effect Of Certain Selected Exercises On The Physical Fitness Of Volleyball Players", Unpublished Masters Dissertation, (Sant Gadge Baba, Amravati University, Amravati, 1988.)
4. Norris R. et.al., "The Effects Of Aerobic And Anaerobic Training On Fitness, Blood Pressure, And Psychological Stress And Well-Being", School Of Psychology, University Of Birmingham., Vol.34, No. 4, 1990, pp.367-375.
5. De Geus E.J. Et. al., "Regular exercise and aerobic fitness in relation to psychological make up and physiological stress reactivity", psychosom Med., Vol. 55, No. 4, Jul.-Aug. 1993, pp.347-363.
6. Ashish R. Shah et.al, "Determinants of Aerobic and Anaerobic Exercise Performance in Cystic Fibrosis", University of Southern California School of Medicine, Los Angeles, California, Volume 157, Number 4, April 1998, 1145-1150, <http://ajrccm.atsjournals.org/cgi/content/full>
7. Trinidad Philomena, "Effects Of Theraband Exercises Physiology Skills Training, And Peer Leadership Program On Selected Measures Of Strength, Flexibility, Cognitive Processes, Mood, And Stress Among Racial Minority Elderly", Dissertation Abstracts International – B, Vol. 58, No.10. April-1998, p.5356.
8. M. Bobo et. al., "The Effects Of Long Term Aerobic Dance On Agility And Flexibility", Journal Of Sports Medicine And Physical Fitness, Vol. 39, No. 3, 1999, p. 108.
9. F. Pigozzi Et. Al., "Effects Of Aerobic Exercise Training On 24 Hr Profile Of Heart Rate Variability In Female Athletes", The Journal Of Sports Medicine And Physical Fitness, Vol. 41, No 1., 2001, p. 101.
10. Dr. V. S. SM. Rao, Rameshpal, "Effect Of Breath Holding On Aerobic And Anaerobic Capacities", Madras, 600 075, INDIA. Yogamimansa, Kavlyadham, Lonavala, (2002) Vol IV, No. 7, p.98
11. J.R. Heath, C.J. Irwin, "An increase in breath-hold time appearing after breath-holding". The Marine Station, Millport, Scotland, Respiration Physiology, Volume 4, Issue 1, 10 January 2003., pp.73-77 [www.sciencedirect.com/science/article/pii/S003456876898X](http://www.sciencedirect.com/science/article/pii/S003456876898X)
12. Haluk KELE, " Effects of Aerobic Exercise Training on the Heart rate-Work rate Relationship and Estimation of Anaerobic Threshold in Obese Females", Turk J Med Sci. 2006; 36 (3): 165-170
13. Jadho Kamal U., "Comparative Study of Effect of Aerobic and Anaerobic exercise on cardio-vascular endurance of leaper school students of Tapowan", Unpublished Masters Dissertation, Sant Gadge Baba Amravati University, Amravati. 2006.
14. Peter H Klijn, Olga H Vander, Baan Slootweg and Henk F Vanstel, "Aerobic exercise in adolescents with

**"EFFECT OF AEROBIC EXERCISES ON PHYSICAL FITNESS OF ADULTS".**

obesity: preliminary evaluation of a modular training program and the modified shuttle test", BMC Pediatrics 2007, Vol. 7, No. 19 doi:10.1186/1471-2431-7-19

15.A Shahana, Usha S Nair, S S Hasrani, "Effect of aerobic exercise programme on health related physical fitness components of middle aged women", British Journal of Sports Medicine, 2010, Vol. 44, Supply 1, p.i19 doi:10.1136/bjism.2010.078725.60

16.Butler, et. al., "Effect of cardiorespiratory training on Aerobic fitness and carryover to activity in children with cerebral palsy", International Journal of Rehabilitation Research, Vol. 33, No.2, June 2010, pp.79-103.