

ISO 9001 - 2015

ISSN 2349 - 4891

Monthly

IF
4.665



Volume 4, Issue 3, March 2017

International Journal of
Recent Research and Applied Studies

SURRAGH PUBLICATIONS
SURRAGH PUBLICATIONS





Effect of Aerobic Exercises on Health Related Fitness Components for College Women Athletes

M.Nithiya¹ & Dr.K.Vaithianathan²

¹M.Phil Research Scholar, Department of Physical Education & Sports Sciences, SRM University, Chennai, Tamilnadu, India.

²Director of Sports, SRM University, Chennai, Tamilnadu, India.

Received 15th February 2016, Accepted 8th March 2017

Abstract

The purpose of the present study was to investigate the effect of aerobic exercise on flexibility and muscular strength for college women athletes. To achieve the purpose of the study thirty college women athletes were selected from colleges affiliated to Alagappa University, during the year 2016. The subject's age ranges from 18 to 22 years. The selected players were divided into two equal groups consists of 15 men players each namely experimental group and control group. The experimental group underwent aerobic exercise programme for six weeks. The control group was not taking part in any exercise during the course of the study. Flexibility and Muscular strength were taken as criterion variables in this study. Pre-test was taken before the exercise period and post- test was measured immediately after the six week exercise period. Statistical technique 't' ratio was used to analyze the means of the pre-test and post test data of experimental group and control group. The results revealed that there was a significant difference found on the criterion variables. The difference found is due to aerobic exercise given to the experimental group on flexibility and muscular strength when compared to control group.

Keywords: Aerobic Exercise, Health Related Fitness, Flexibility and Muscular Strength.

© Copy Right, IJRRAS, 2017. All Rights Reserved.

Introduction

Sport exercise aims at improving sports performance. Therefore the nature and structure of sports performance determines to a great extent the means and methods of exercise as well as the total planning, organization, implementation and assessment of exercise. The knowledge about the nature and structure of sports performance must be considered as the first and perhaps the most important step towards the successful preparation of sportsmen for higher performance. Aerobic exercise refers to exercise that involves or improves oxygen consumption by the body. 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. To obtain the best results, an aerobic exercise session involves a warming up period, followed by at least 20 minutes of moderate to intense exercise involving large muscle groups and a cooling down period at the end. This exercise is designed to produce a sustained increase in heart rate and whose energy cost can be met by the body from aerobic sources i.e. from increased oxygen consumption (Yadav and Rachna, 1998).

Correspondence

M.Nithiya

E-mail: drarunprasanna@gmail.com

Methodology

For the purpose of the study was to find out the effect of aerobic exercise on flexibility and muscular strength for college women athletes. To achieve this purpose of the study, thirty women athletes were selected as subjects at random. The age of the subjects were ranged from 18 to 22 years. The selected subjects were divided into two equal groups of fifteen subjects each, such as aerobic exercise group (Experimental Group) and control group. The experimental group underwent aerobic exercise for three days per week for six weeks. Control group which they did not undergo any special exercise programme apart from their regular physical activities as per their curriculum.

Experimental Design

This study was formulated as post test group design .one group was assigned Aerobics exercises programme. The other group acted control group no training programmed.

Selection of Variables

Flexibility - Sit and Reach (centimeters)
Muscular strength - Push-Ups (per minute)

Statistical Technique

The following statistical procedures were used. The "t" ratio was calculated to find out the significance of the difference between the mean of the initial and final test of the experimental group.

Analysis of the Data

The significance of the difference among the means of experimental group was found out by pre-test.

Table 1

analysis of 't'-ratio for the pre and post tests of experimental and control group on flexibility (sit and reach means in centimeters)

Groups	Mean		Mean Difference	S.D	Standard Error	't' ratio
	Pre	Post				
Experimental	31.53	33.33	1.80	1.47	0.38	4.73*
Control	29.33	28.47	0.87	1.68	0.43	1.99

*Significance at .05 level of confidence. (The table value required for 0.05 level of significant with df of 14 is 2.14)

The Table 1 shows that the mean values of pre-test and post-test of control group on flexibility were 29.33 and 28.47 respectively. The obtained 't' ratio was 1.99, since the obtained 't' ratio was less than the required table value of 2.14 for the significant at 0.05 level with 14 degrees of freedom it was found to be statistically insignificant. The mean values of pre-test and post-test of experimental group on flexibility were 31.53 and 33.33 respectively. The obtained 't' ratio was

The data were analyzed and dependent 't' test was used with 0.05 levels as confidence.

4.73* since the obtained 't' ratio was greater than the required table value of 2.14 for significance at 0.05 level with 14 degrees of freedom it was found to be statistically significant. The result of the study showed that there was a significant difference between control group and experimental group in flexibility. It may be concluded from the result of the study that experimental group improved in flexibility due to six weeks of aerobic exercise.

Table 2

Analysis of 't'-ratio for the pre and post tests of experimental and control group on muscular strength (Push-Ups means in per minute)

Groups	Mean		Mean Difference	S.D	Standard Error	't' ratio
	Pre	Post				
Experimental	26.67	27.6	0.93	1.47	0.38	4.73*
Control	24.80	24.67	1.33	0.99	0.26	0.52

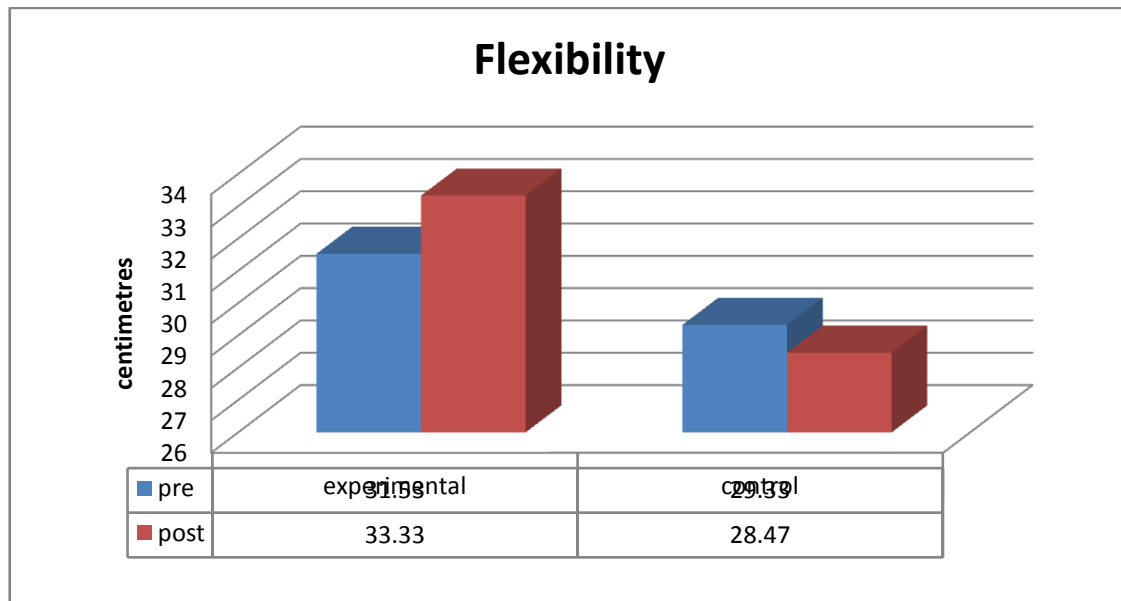
*Significance at .05 level of confidence. (The table value required for 0.05 level of significant with df of 14 is 2.14)

The Table 2 shows that the mean values of pre-test and post-test of control group on muscular strength were 24.80 and 24.67 respectively. The obtained 't' ratio was 0.52, since the obtained 't' ratio was less than the required table value of 2.14 for the significant at 0.05 level with 14 degrees of freedom it was found to be statistically insignificant. The mean values of pre-test and post-test of experimental group on muscular strength were 26.67 and 27.6 respectively. The obtained 't' ratio

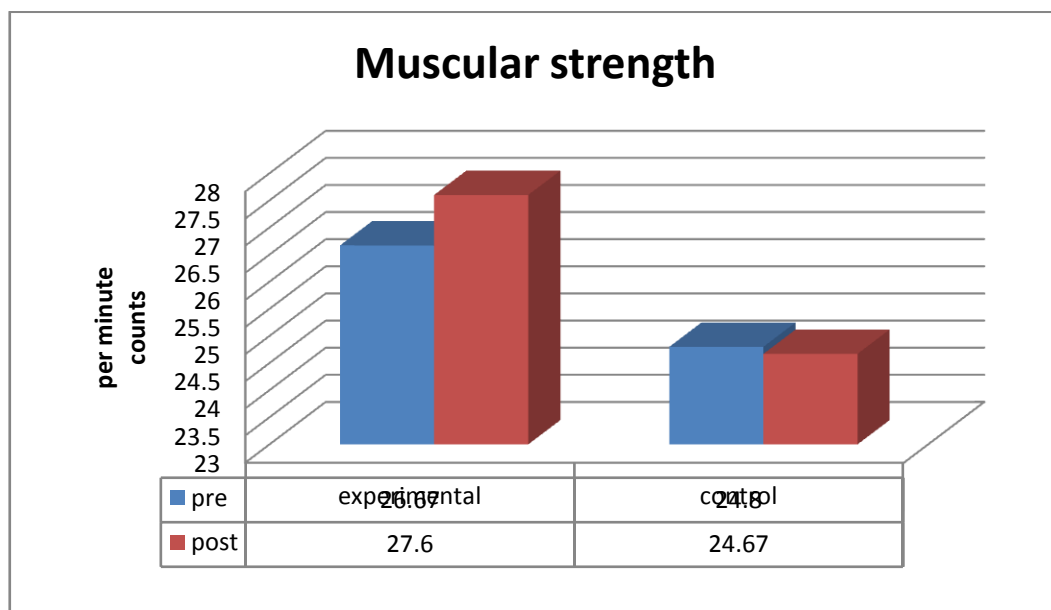
was 4.73* since the obtained 't' ratio was greater than the required table value of 2.14 for significance at 0.05 level with 14 degrees of freedom it was found to be statistically significant. The result of the study showed that there was a significant difference between control group and experimental group in muscular strength. It may be concluded from the result of the study that experimental group improved in muscular strength due to six weeks of aerobic exercise.

Figure I

Mean values of Aerobic exercise group and control Group on Flexibility

*Figure II*

Mean values of Aerobic exercise group and control Group on Muscular Strength (Push-Ups means in per minute)



Discussions on Findings

The result of the study indicates that the experimental group namely aerobic exercise group had significantly improved the selected dependent variables namely flexibility and Muscular strength, when compared to the control group. It is also found that the improvement caused by aerobic exercise when compared to the control group.

Conclusions

1. There was a significant difference between experimental and control group on health related fitness components after the exercise period.
2. There was a significant improvement in flexibility and muscular strength. However the improvement was in favour of experimental group due to six weeks of aerobic exercise.

References

1. Arnett SW, et.al, "*Aerobic reserve and physical functional performance in older adults*", Age Ageing. 2008 Jul;37(4):384-9.
2. Jason L Talanian et.al, "*Two weeks of high-Shahana A., Usha S Nair., and Hasrani SS., (2010) Effect of aerobic exercise programme on health related physical fitness components of middle aged women.*Jouranal of Sports Medicine; 44:i19.
3. Kin-Isler A, and Kosar SN "*Effect of step aerobics exercise on anaerobic performance of men and women*", Journal of Strength and Conditioning, 2006 May;20(2): 366-71
4. Torgan, C. E. et.al, "*Interaction of aerobic exercise exercise and clenbuterol: effects on insulin-resistant muscle*", Journal of Applied Physiology, 75:3, 1471-1476 1993.
5. Wells, K.F. & Dillon, E.K. (1952). *The sit and reach. A test of back and leg flexibility.* Research Quarterly, 23. 115-118.