



Research article

EFFECT OF AEROBIC TRAINING ON SELECTED PHYSICAL AND PHYSIOLOGICAL VARIABLES AMONG FEMALE VOLLEYBALL PLAYERS

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Abstract

The purpose of the study was to find out the effect of aerobics training on selected physical and physiological variables among female volleyball players. To achieve the purpose of the present study, thirty Female from The Fatima College, Madurai, were randomly selected as subjects and their age was between 18 and 25 years. The study was formulated as a true random group design, consisting of a pre-test and post-test. The subjects (N=30) were randomly assigned to two equal groups of fifteen Female each. The groups were assigned as Aerobics Training group and control group in an equivalent manner. The group I underwent Aerobics Training and group II acted as a control group. The experimental group participated the training for a period of twelve weeks to find out the outcome of the training packages and the control group did not participated in any training programme. The variable to be used in the present study was collected from all subjects before they have to treat with the respective treatments. It was assumed as pre-test. After completion of treatment they were tested again as it was in the pre-test on all variables used in the present study. This test was assumed as posttest. To test the obtained results on variables, level of significance 0.05 was chosen and considered as sufficient for the study. The Aerobics Training group produced significant improvement in Physical and Physiological variables among Female volleyball players. In the control group the obtained 't' value on all the variables were failed to reach the significant level.

Key Words: Aerobic training, speed, cardio respiratory & agility, volleyball female

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INTRODUCTION

Sports, the word are derived from the Latin as *deportatus*, which survive in the Roman language in the sense of “to amuse oneself”. In the early twelfth century it is attested in Spanish as *deportare* or *se deportare*. (“French it appears in the same sense in the fourth century as *disportare*”) was format from the verb, and in the fifteenth century English the shorten from “sport” which meant the free time, relaxation from the more serious claims of life, merry entertainment games.

Sports are one of the striking features of twelfth century life, as evidenced by the variety and popularity of sporting events in the most diverse parts of the world. This new phenomenon in society has attached the interest if researchers in many fields, and ever more urgently calls upon historians to contribute to a deeper understanding of sport through the knowledge of the past.

Sports have become an important part of nation’s culture as well as of other culture throughout the world. Sports pervade society to such an extent that it has been described by many as a microcosm of society. As such, sports reflect characteristics of society.

MATERIALS AND METHODS

The purpose of the study was to find out the Effect of Aerobics Training on Selected Physical and Physiological Variables among Female Volleyball

Players. To achieve the purpose of the present study, To facilitate the study, thirty Female from The Fatima College, Madurai, were randomly selected as subjects and their age were between 18 to 25 years. The study was formulated as a true random group design, consisting of a pre-test and post-test. The subjects (N=30) were randomly assigned to two equal groups of fifteen Female each. The groups were assigned as Aerobics Training group and control group in an equivalent manner. The group I underwent Aerobics Training group II acted as a control group. The experimental group participated the training for a period of twelve weeks to find out the outcome of the training packages and the control group did not participated in any training programme. The variable to be used in the present study was collected from all subjects before they have to treat with the respective treatments. It was assumed as pre-test. After completion of treatment they were tested again as it was in the pre-test on all variables used in the present study. This test was assumed as post-test. Paired ‘t’ test was applied to test the significance of mean gains made in each of the variables by the experimental groups. To test the obtained results on variables, level of significance 0.05 was chosen and considered as sufficient for the study.

TABLE - I
SELECTION OF VARIABLES & TESTS MEASURES

S.No	Variables	Test items	Unit of Measurement
1.	Speed	50 Yard dash	Seconds
2.	Agility	T-test	Seconds
3.	Cardio Respiratory Endurance	Cooper 12min run and walk	Meters
4.	Resting heart rate	Manual	Counts
5.	Breath holding time	Stop watch	Seconds

TABLE - II
NALYSIS OF ‘t’ RATIO FOR THE PRE AND POST-TESTS OF CONTROL AND EXPERIMENTAL GROUP ON SPEED

Variable	Group	Mean		SD		Sd Error	df	‘t’ ratio
		Pre	Post	Pre	Post			
Speed	Control	6.98	7.04	0.23	0.21	0.07	14	0.88
	Experimental	6.98	6.75	0.30	0.28	0.10		2.26*

**Significance at .05 level of confidence.*

The Table - II shows that the mean values of pre-test and post-test of control group on speed were 6.98 and 7.04 respectively. The obtained ‘t’ ratio was 0.88, since the obtained ‘t’ ratio was lesser than the required table value of 2.15 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 groups on speed were 6.98 and 6.75 respectively. The obtained ‘t’

ratio was 2.26 since the obtained ‘t’ ratio was greater than the required table value of 2.15 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 pretest and posttest in speed. It may be concluded from the result of the study that experimental group improved the speed due to six weeks of aerobic training.

FIGURE - 1
BAR DIAGRAM SHOWS THE MEAN VALUES OF PRE AND POST-TESTS OF CONTROL AND EXPERIMENTAL GROUP ON SPEED

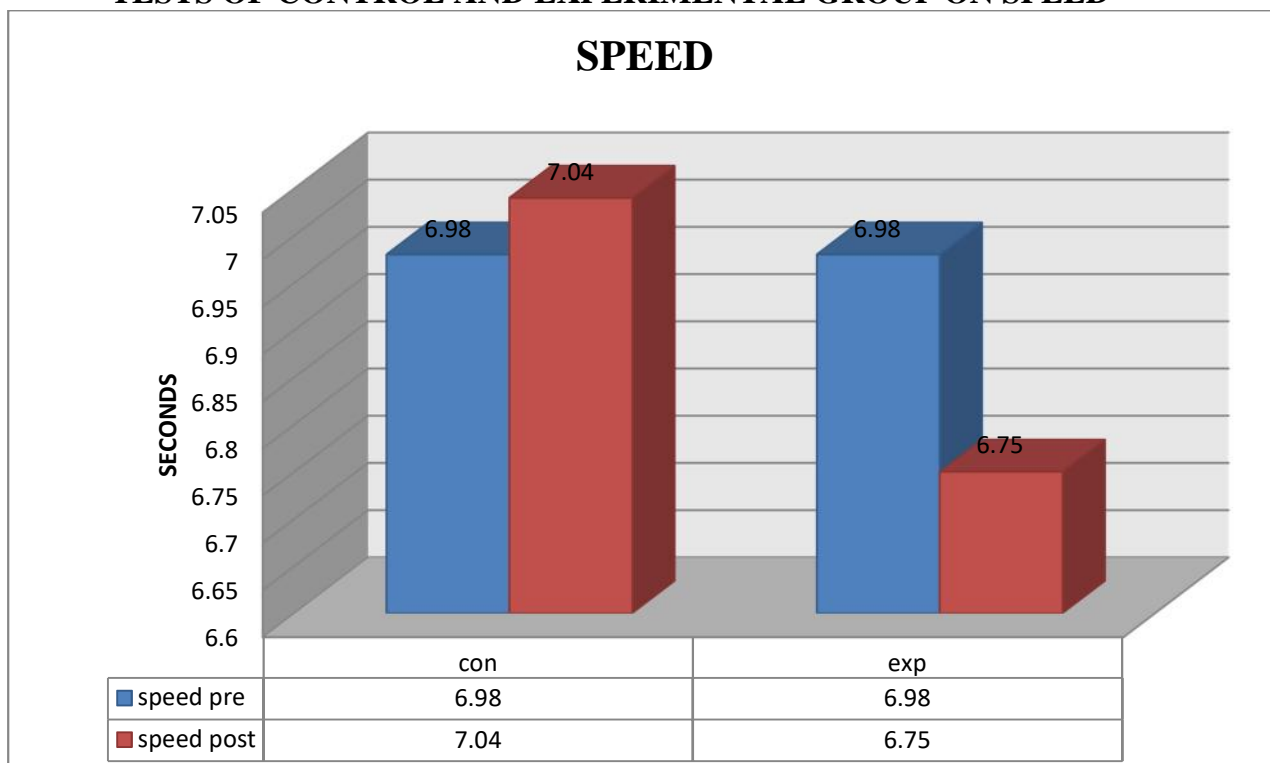


TABLE – III
ANALYSIS OF ‘t’ RATIO FOR THE PRE AND POST-TESTS OF CONTROL AND EXPERIMENTAL GROUP ON ENDURANCE

Variable	Group	Mean		SD		Sd Error	df	‘t’ ratio
		Pre	Post	Pre	Post			
Endurance	Control	2697	2693	142.48	146.99	30.95	14	0.13
	Experimental	2694	2763	141.78	103.51	30.71		2.23*

*Significance at .05 level of confidence.

The Table - III shows that the mean values of pre-test and post-test of control group on endurance were 2697 and 2693 respectively. The obtained ‘t’ ratio was 0.13 since the obtained ‘t’ ratio was less than the required table value of 2.15 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 groups on endurance were 2694 and 2763 respectively. The

obtained ‘t’ ratio was 2.23 since the obtained ‘t’ ratio was greater than the required table value of 2.15 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 pretest and posttest in endurance. It may be concluded from the result of the study that experimental group improved the endurance due to six weeks of aerobic training.

FIGURE - 2
BAR DIAGRAM SHOWS THE MEAN VALUES OF PRE AND POST-TESTS OF CONTROL AND EXPERIMENTAL GROUP ON ENDURANCE

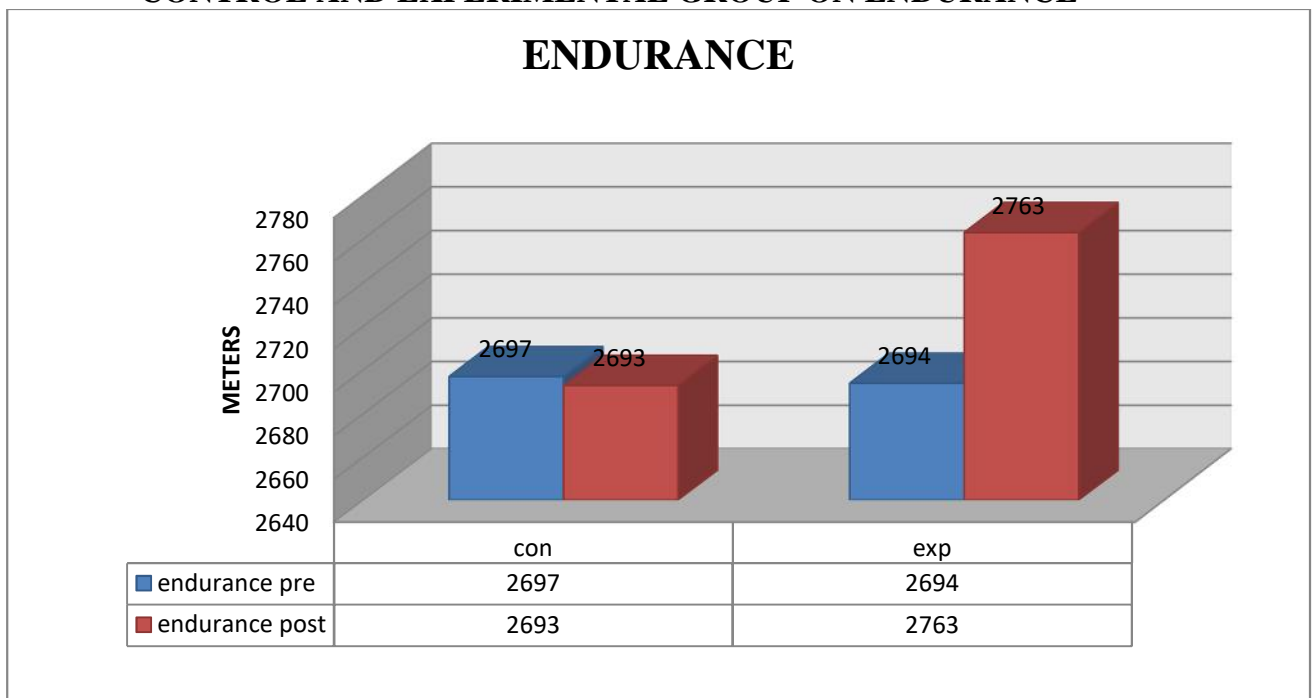


TABLE - IV
ANALYSIS OF 'T' RATIO FOR THE PRE AND POST-TESTS OF CONTROL AND EXPERIMENTAL GROUP ON AGILITY

Variable	Group	Mean		SD		Sd Error	df	't' ratio
		Pre	Post	Pre	Post			
Agility	Control	11.79	11.90	0.45	0.82	0.27	14	0.40
	Experimental	11.92	11.47	0.69	0.74			0.12

*Significance at .05 level of confidence.

The Table - IV shows that the mean values of pre-test and post-test of control group on agility were 11.79 and 11.90 respectively. The obtained 't' ratio was 0.40 since the obtained 't' ratio was less than the required table value of 2.15 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 groups on agility were 11.92 and 11.47 respectively. The obtained 't'

ratio was 3.77 since the obtained 't' ratio was greater than the required table value of 2.15 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 agility. It may be concluded from the result of the study that experimental group improved in agility due to six weeks of aerobic training.

FIGURE - 3
BAR DIAGRAM SHOWS THE MEAN VALUES OF PRE AND POST-TESTS OF CONTROL AND EXPERIMENTAL GROUP ON AGILITY

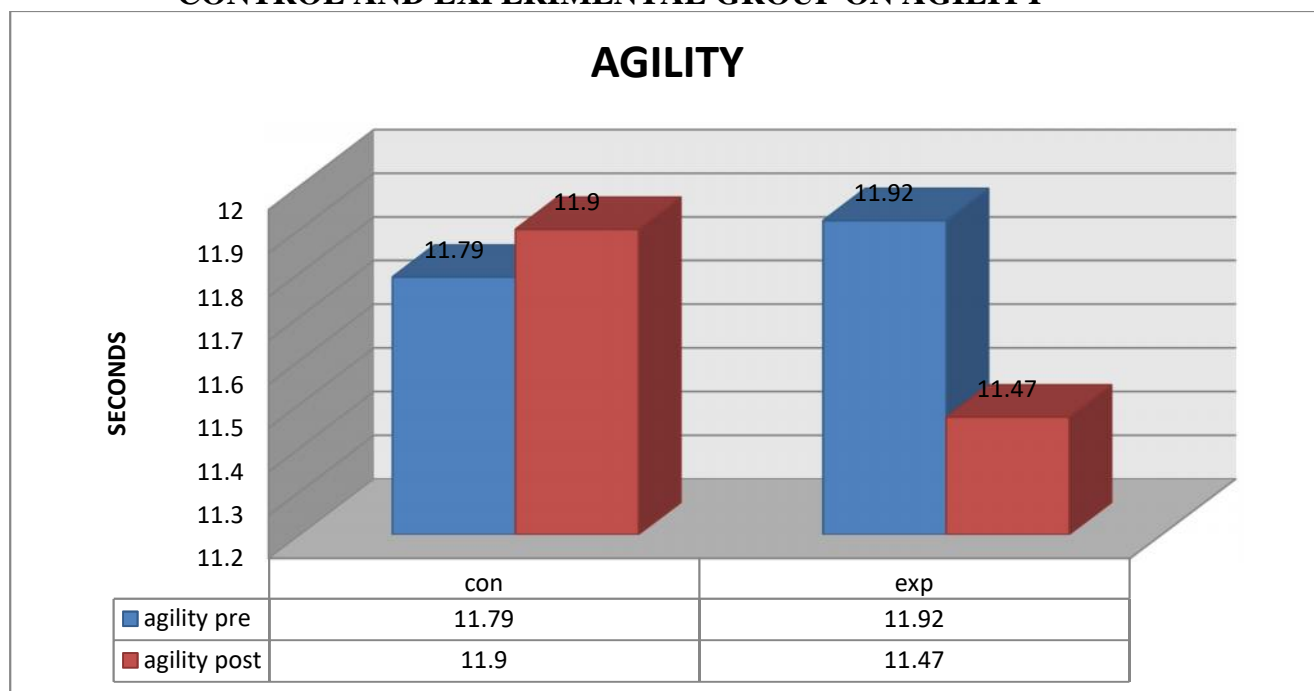


TABLE - V
ANALYSIS OF ‘t’ RATIO FOR THE PRE AND POST-TEST OF CONTROL AND EXPERIMENTAL GROUP ON RESTING HEART RATE

Variable	Group	Mean		SD		Sd Error	df	‘t’ ratio
		Pre	Post	Pre	Post			
Resting Heart Rate	Control	68.27	68.33	1.87	2.13	0.21	14	0.32
	Experimental	68.60	68.13	1.64	1.36	0.17		2.82*

**Significance at .05 level of confidence.*

The Table - V shows that the mean values of pre-test and post-test of control group on resting heart rate were 68.27 and 68.33 respectively. The obtained ‘t’ ratio was 0.32 since the obtained ‘t’ ratio was less than the required table value of 2.15 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 groups on resting heart rate were 68.60 and 68.13 respectively. The obtained ‘t’ ratio was

2.82 since the obtained ‘t’ ratio was greater than the required table value of 2.15 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 pretest and posttest in resting heart rate. It may be concluded from the result of the study that experimental group improved the resting heart rate due to six weeks of aerobic training.

FIGURE - 4
BAR DIAGRAM SHOWS THE MEAN VALUES OF PRE AND POST-TESTS OF CONTROL AND EXPERIMENTAL GROUP ON RESTING HEART RATE

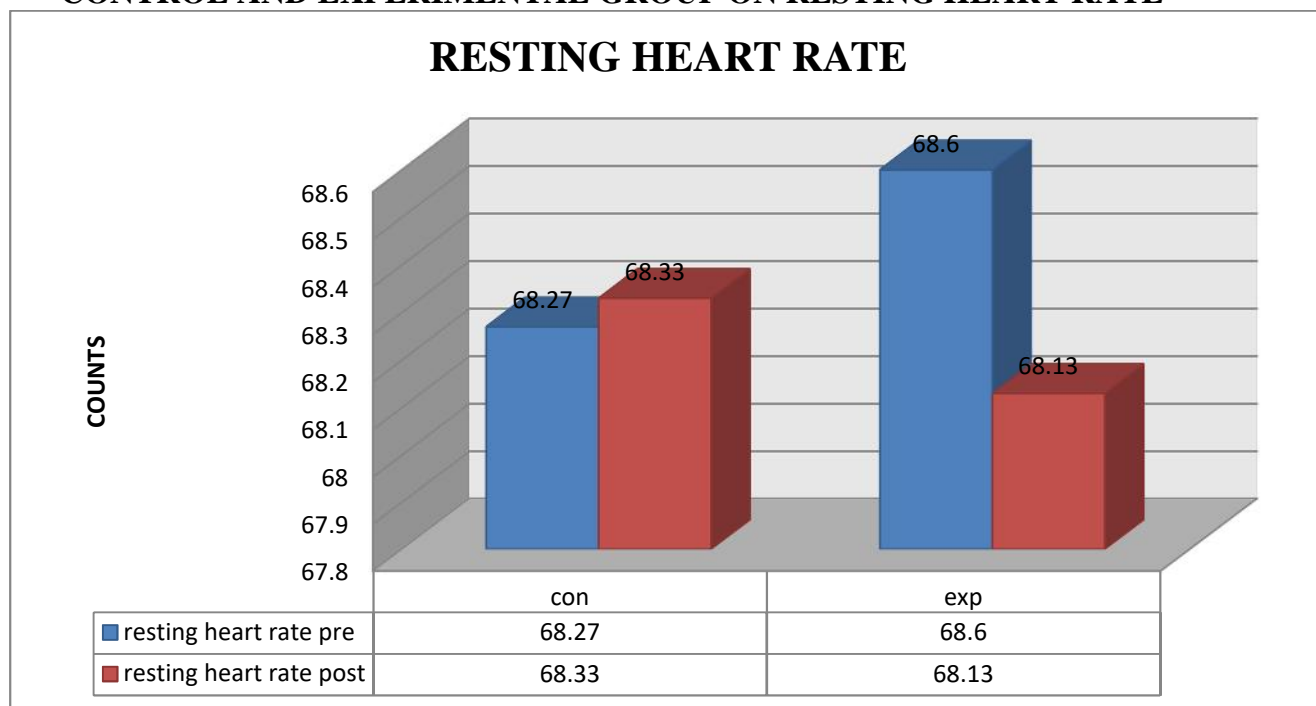


TABLE - VI
ANALYSIS OF ‘t’ RATIO FOR THE PRE-TEST AND POST-TEST OF
CONTROL GROUP AND EXPERIMENTAL GROUP ON
BREATH HOLDING TIME

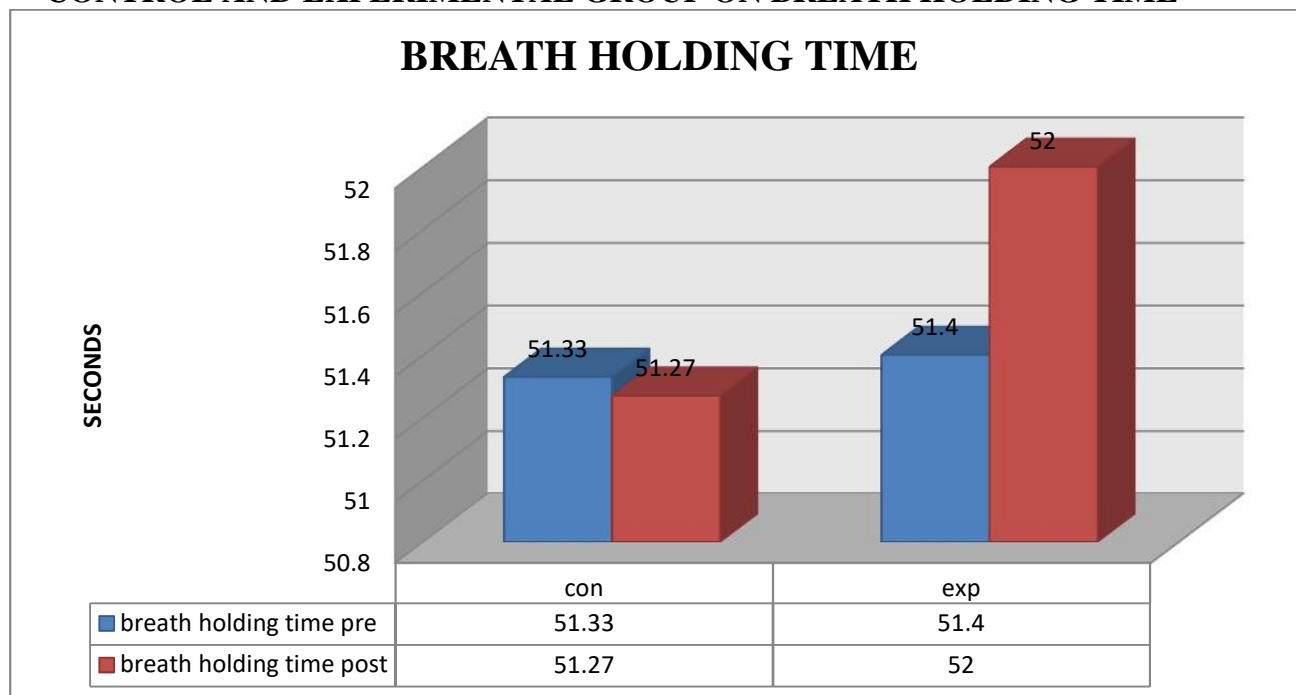
Variable	Group	Mean		SD		Sd Error	df	‘t’ ratio
		Pre	Post	Pre	Post			
Breath Holding Time	Control	51.33	51.27	8.04	8.04	0.07	14	1.00
	Experimental	51.40	52	3.16	3.30	0.25		2.35*

*Significance at .05 level of confidence.

The Table- VI shows that the mean values of pre-test and post-test of control group on breath holding time were 51.33 and 51.27 respectively. The obtained ‘t’ ratio was 1.00 since the obtained ‘t’ ratio was less than the required table value of 2.15 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 groups on breath holding time were 51.40 and 52 respectively. The obtained ‘t’ ratio was 2.35 since the

obtained ‘t’ ratio was greater than the required table value of 2.15 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 pretest and posttest in breath holding time. It may be concluded from the result of the study that experimental group improved in breath holding time due to six weeks of aerobic training.

FIGURE - 5
BAR DIAGRAM SHOWS THE MEAN VALUES OF PRE AND POST-TEST OF
CONTROL AND EXPERIMENTAL GROUP ON BREATH HOLDING TIME



CONCLUSIONS

1. Speed, endurance, agility, resting heart rate, breath holding time were significantly improved due to the influence of aerobic training among school female volleyball players.

RECOMMENDATIONS

From the results of the study the following recommendations are drawn

1. The present study is recommended to the coaches, trainers and physical

2. Educators to adopt this training to improve health related physical fitness.
3. The similar study may be conducted on sports players.
4. The similar study may be conducted for women at different age group.
5. The similar study may be conducted for men at different age groups.
6. Similar research work may be attempted by using skill related physical
7. Fitness, physiological and biochemical variables.

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