CHAPTER - IV

Results And Discussions

The data collected according to the test procedures discussed in chapter III and the analyses of said data and their appropriate discussions have been made in this chapter.The results are presented dimensionwise in tabular form and discussions are made accordingly .

4.1. Personal data

The age, height and weight of the subjects have been considered as personal data and their mean values, range and SD are presented in Table No. -1.

Table - 1 Mean, range and SD of age, height and weight of the subjects.

Variables	Mean	Range	SD
Age (Year)	23.11	21 – 25	± 1.28
Height (cm)	156.66	150 – 168	± 4.62
Weight during Pre test July '94 (kg)	46.29	36 – 72	± 8.44
Weight during Post test March '95 (kg)	47.83	38 – 75	± 8.30

4.1.1. Age

It appears from the Table No - 1 that the mean age of the subjects was 23.11 years with the range between 21-25 and the variation of 1.28 years.

4.1.2. Height

From the Table No-1 it appears that the mean height of the subjects was 156.66cm tallest with a variation of 4.62 cm. The tallest subject was 168cm and the shortest one was 150cm.

4.1.3. Weight

It appears from the Table No-1 that a wide variation in weight was observed with the highest weight of 72Kg and the lowest 36 Kg. The mean weight was 46.29 Kg with a SD of 8.44 Kg at the onset of the training and after completion of training mean weight increased slightly and was 47.83± 8.30 Kg.

Regarding influence of training on body weight great variation may be observed among the researchers. While Glick and Kaufmann (1976), Housh et al. (1988). Yoshizawa et al. (1990) found increase of body weight following training, Pollock et al. (1975), Buccola and Stone (1976), McIntosh (1983), Whatley et al. (1994) found decrease in body weight following training.

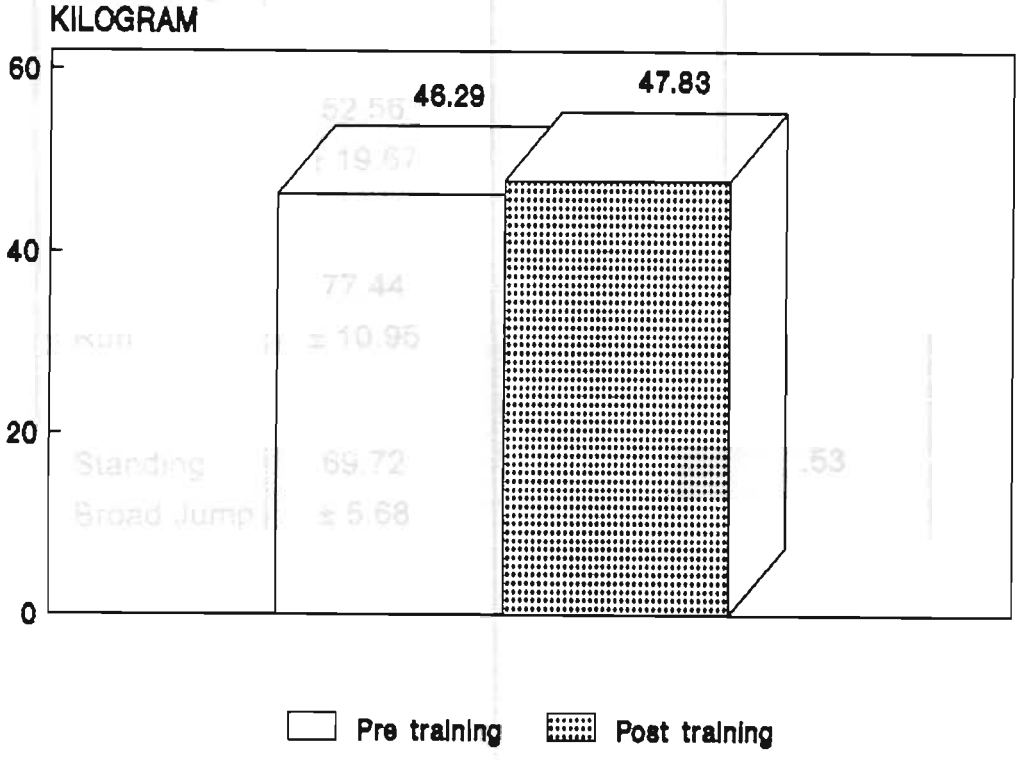
On the oher hand Gettman et al. (1978), Thomas (1978), Stacy et al. (1982), Hurley et al. (1984), Mcgown et al. (1990), Garber et al. (1992), found no change in body weight following training.

In the present study increase in body weight was observed following training. From the findings of the present study it may be inferred that, body weight may be altered due to influence of training depending on the nature of the training regimen.

4.2. Fitness variables

Six standard tests on fitness variables were conducted at the onset (July 1994) and at the end of the training course (March 1995) according to the test procedures mentioned in chapter III. The raw data collected from each test was converted to percentile scores according to the AAHPER Youth Fitness norms (1976) cited by Barrow (1979). The raw data and their corresponding percentile score of all the subjects have been given in Appendix No- A_1. In Table No -2 the mean of the percentile scores of six items obtained from pre and post tests are presented.

Fig.7. Comparison of body weight of the subjects before & after training.



Accordingly during discussion and analyses of the data the percentile scores would only be considered.

Table - 2 Mean and SD of the pre and post test data of fitness variables and their comparison.

Variables	Pre Test Mean SD	Post Test Mean SD	SED	Obtained 't' value
Flexed Arm Hang	52.33 ± 29.68	67.61 ± 22.72	3.21	4.76*
Sit Up	52.56 ± 19.67	72.78 ± 20.40	3.18	6.36*
Shuttle Run	77.44 ± 10.95	86.27 ± 5.83	2.52	3.49*
Standing Broad Jump	69.72 ± 5.68	72.55 ± 6.17	.53	5.32*
50 Yard Dash	64.44 ± 19.67	81.43 ± 15.37	3.67	4.65*
600 Yard Run-walk	74.89 ± 13.51	83.11 ± 16.37	1.07	7.65*

* Signifiant at .05 level.

4.2.1. Strength Test.

It appears from the Table -2 that the mean percentile scores of the pre and post tests of the Flexed Arm Hang test were 52.33 and 67.61. And the obtained 't'

value between two sets of scores was 4.76 which was significant at .05 level. 29.20% net improvement was observed on the post test score.

4.2.2. Muscular Endurance Test

The mean scores of pre and post test in Sit up were 52.56 and 72.78. The obtained 't' value bteween the two sets of scores was 6.36 which was also significant. Following organised physical education training the performance in sit up test was improved significantly in post test and the magnitude of improvement was maximum (38.50%) among the physical fitness tests conducted.

4.2.3. Agility Test

From Table No. -2 the mean scores of the pre and post tests in the Shuttle Run (agility test) performance were 77.44 and 86.27 respectively. 11.40% improvement was observed on the post test score. Physical training programme has positively influenced this improvement. The two sets of score when compared, the obtained 't' value 3.49 was also found significant at .05 level.

4.2.4. Leg Power Test

It appears from Table No. 2 that the mean percentile scores of the pre and post test in the Standing Broad Jump performance were 69.72 and 72.55 respectively. The obtained 't' value was 5.32 and found significant at .05 level. In comparison to other fitness tests the improvement in leg power test was minimum, only 4.06%.

4.2.5. Speed Test

The mean percentile scores of the pre and post tests in the 50 Yard Dash test were 64.44 and 81.43 respectively. Significant difference existed between the two means as the 't' value obtained was 4.65. 26.36% improvement was observed at the post test score from that of pre test score and may be attributed due to the training programme.

4.2.6. Cardiorespiratory Endurance Test

The mean scores of the pre and post tests in the 600 Yard Run-Walk test were 74.89 and 83.11 respectively. Comparing the means the obtained 't' value 7.65 was found significant at .05 level. Improvement in the post test was 10.97% from that of pre test and was comparatively low.

Fig.8.Comparison of strength performance (shoulder girdle) before & after the training

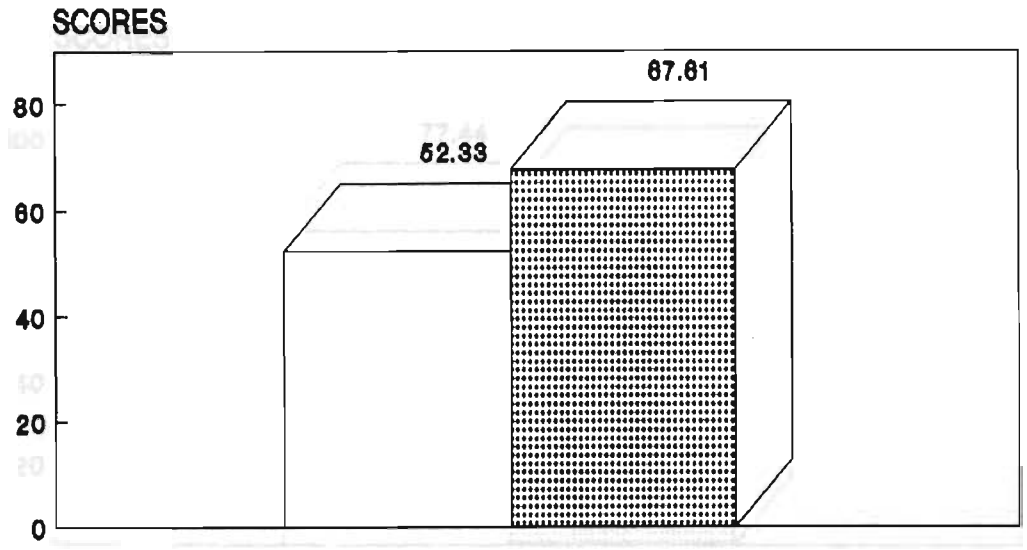


Fig.9.Comparison of endurance performance (muscular) of the subjects before & after the training

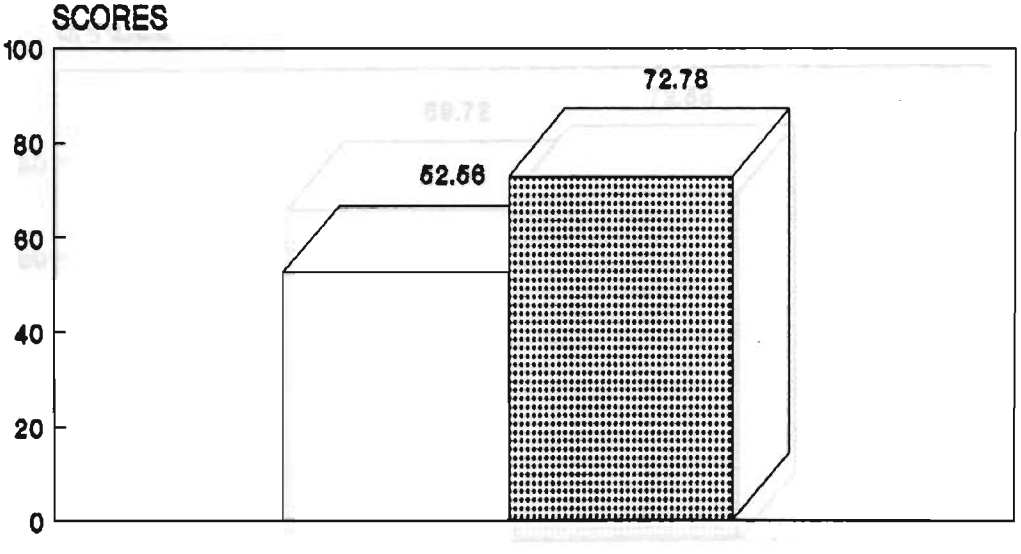


Fig.10. Comparison of agility performance of the subjects before & after the training

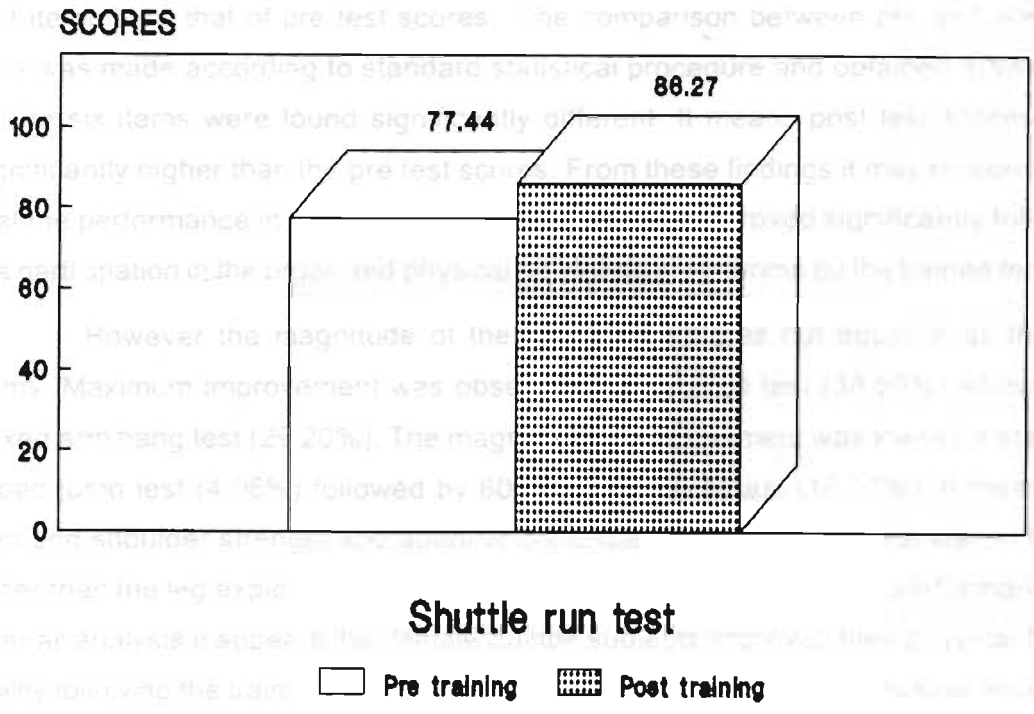
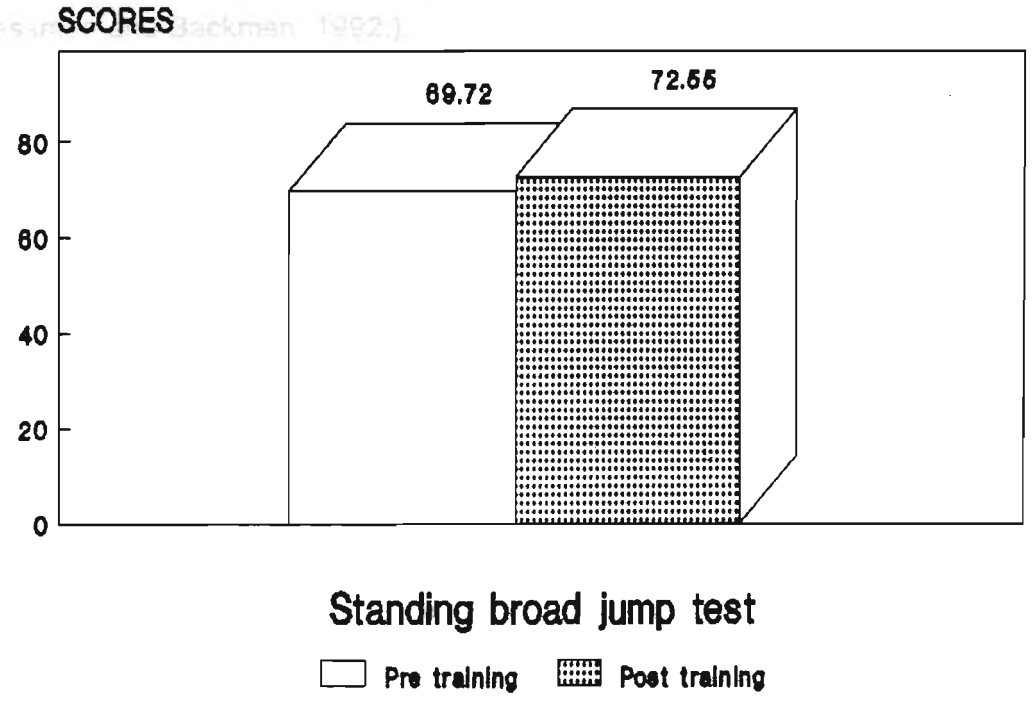


Fig.11. Comparison of leg power performance of the subjects before & after the training



4.2.7. Discussion

It appears from the Table No-1 that the post test scores were higher in all six test items than that of pre test scores,. The comparison between pre and post test data was made according to standard statistical procedure and obtained 't' values in all the six items were found significantly different. It means post test scores were significantly higher than the pre test scores. From these findings it may be concluded that the performance in the six fitness test items were improved significantly following the participation in the organised physical education programme by the trainee females.

However the magnitude of the improvement was not equal in all the test items. Maximum improvement was observed in the sit up test (38.50%) followed by flexed arm hang test (29.20%). The magnitude of improvement was lowest in standing broad jump test (4.06%) followed by 600 yard run-walk test (10.97%). It means the arm and shoulder strength and abdominal muscle strength-endurance was in higher order than the leg explossive strength and general cardiorespiratory performance . In over all analysis it appears that female trainee subjects improved their physical fitness ability following the training programme adopted by the professional physical education training institute.

A number of researchers have shown that following well planned organised physical training, performances in selected physical fitness tests were improved significantly in men (Nunneys 1960; Metz, 1968; Mcnamara, 1978; Cunningham, 1981; Mandal and Bannerjee, 1990; etc) and in women (Edwards, 1974; Macdonald, 1983; Hassmen and Backmen, 1992;).

Sharkey (1990) has reported that exercise with medium resistance and repetition 15 to 25 may improve endurance as well as strength. Clark and Vaccaro (1979), Reid et al. (1987) have shown improvement in muscular strength endurance among young boys & girls and adult male respectively.

Weltman et al. (1986), Leatt et al. (1987) Housh et al. (1988) have particularly found improvement in vertical jump performance following training.

Harre (1982) and Fox (1981) have shown that running speed may be improved through training. Nunney (1960) found improvement in speed by circuit training method Bandopadhyay (1992) observed that improvement of running speed is possible if the training is very specific for the purpose and the duration of the training be not less than 8 to 10 weeks. Mandal and Banerjee (1989) found no improvement in running speed following six weeks multigym training, though strength gain was significant

Fig.12. Comparison of speed performance of the subjects before & after the training

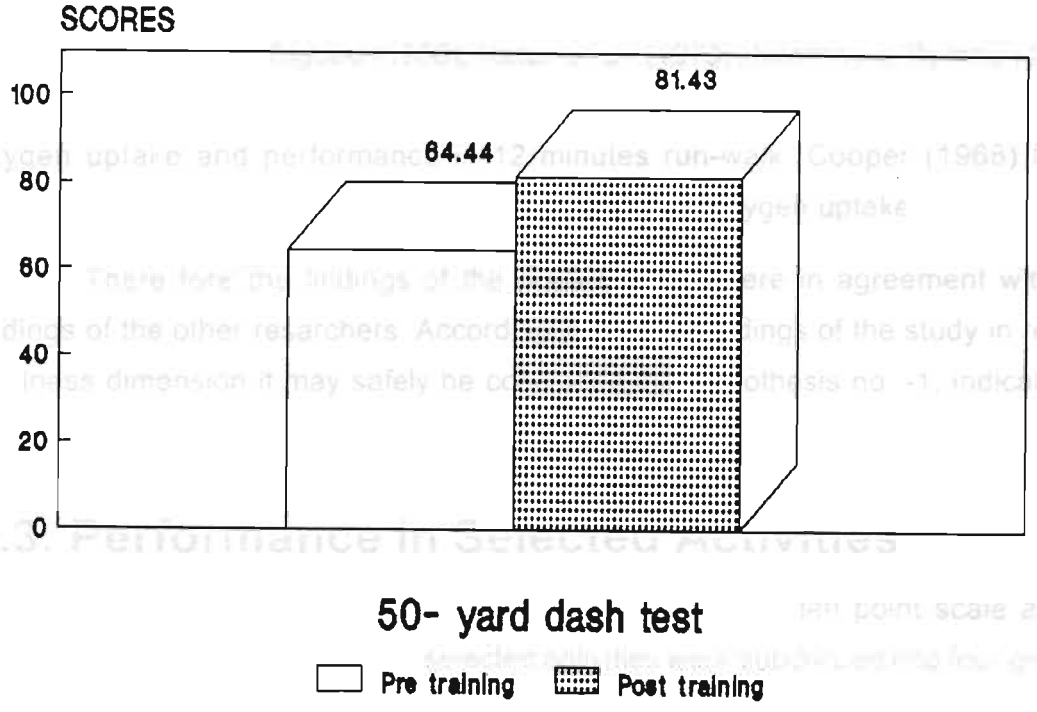
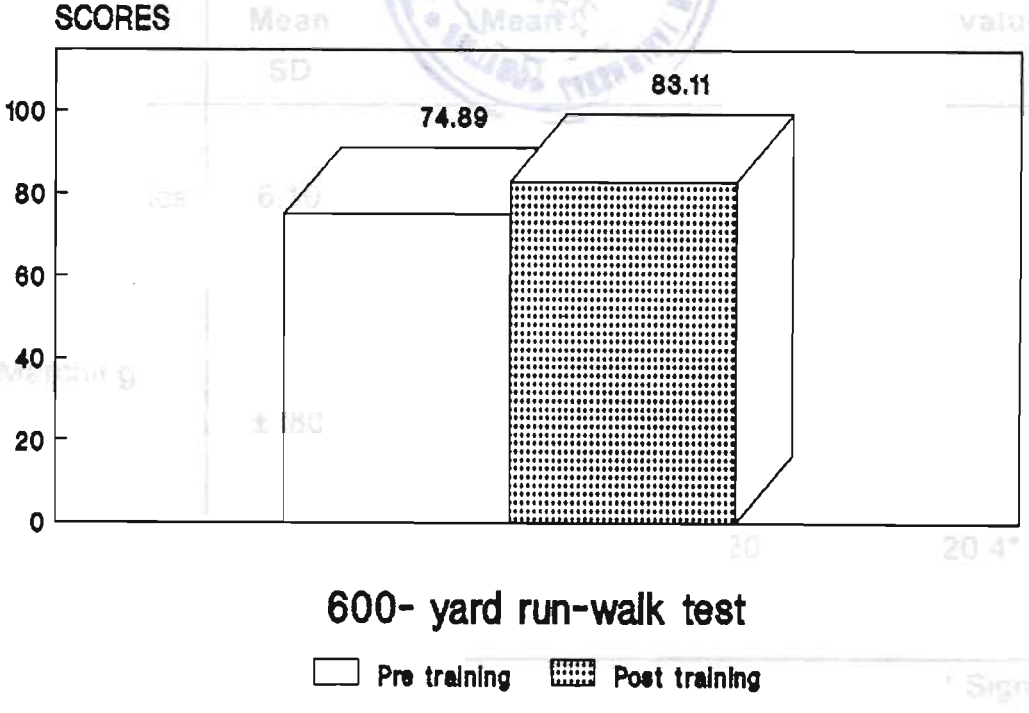


Fig.13. Comparison of endurance performance (cardiorespiratory) of the subjects before & after the training



Das and Banerjee (1992) observed that speed performance may be improved through appropriate training and longer the duration better was the magnitude of the improvement, among young soccer trainees.

Doolittle and Bigbee (1968), Katch et al. (1973), Kearney & Byrnes (1974), Ghosh and Banerjee (1985) found significantly high correlation between predicted oxygen uptake and performance in 12 minutes run-walk. Cooper (1968) found correlation of .897 between 12 min run with maximum oxygen uptake.

There fore the findings of the present study were in agreement with the findings of the other resarchers. Accordingly from the findings of the study in regard to fitness dimension it may safely be concluded that hypothesis no. -1, indicated in chapter 1.7 is accepted.

4.3. Performance in Selected Activities

Performance in selected activities were rated in a ten point scale as per procedure indicated in chapter III. selected activities were subdivided into four groups. Discussion are made group wise.

Table - 3 Mean and SD of the pre and post test data of formal activity and their comparison.

Activities	Pre Test Mean SD	Post Test Mean SD	SED	Obtained 't' value
Callisthenics	6.10 ± .45	6.58 ± .46	.04	12*
Marching	3.77 ± .80	5.13 ± .87	.05	27.2*
Dumbbell	3.06 ± .86	7.14 ± .80	.20	20.4*

* Significant

4.3.1. Formal Activity

Formal activities comprised of callisthenics, marching and dumbbell. The mean scores in these three activities at pre and post test respectively and 't' value comparing the mean scores are presented in Table No - 3. In these three activities the post test means were found significantly higher than the pre test mean scores. It means performance in these three activities improved following participation in the physical education training programme. The duration of participation in these activities were about six weeks. However the magnitude of improvement in these three activities were not equal. The maximum improvement noticed in dumbbell (133.33%) followed by marching (36.07%) and in callisthenics it was minimum (7.86%). Since the pre test score in Callisthenics was considerably high, the magnitude of improvement after six weeks was minimum. Further more learning in dumbbell activity was probably easier and due to very nature of the activity the magnitude of improvement was considerably high.

Table - 4 Mean and SD of the pre and post test data of Rhythmical Activity rating scores and their comparison.

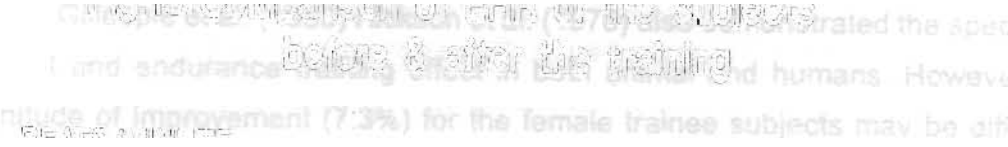
Activities	Pre Test Mean SD	Post Test Mean SD	SED	Obtained 't' value
Lazium	2.63 ± .54	6.06 ± .78	.11	31.2*
Bratachari	5.39 ± 1.09	6.22 ± 1.31	.17	4.88*

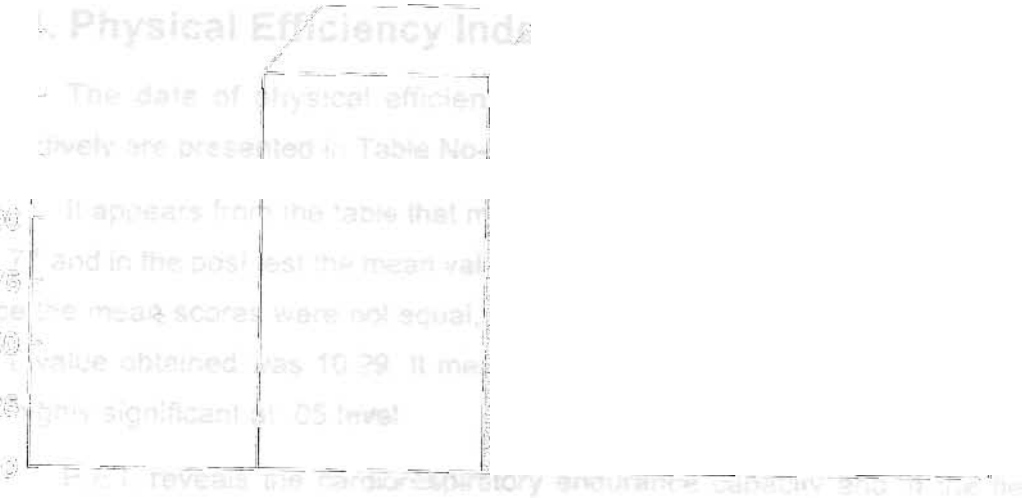
* Significant

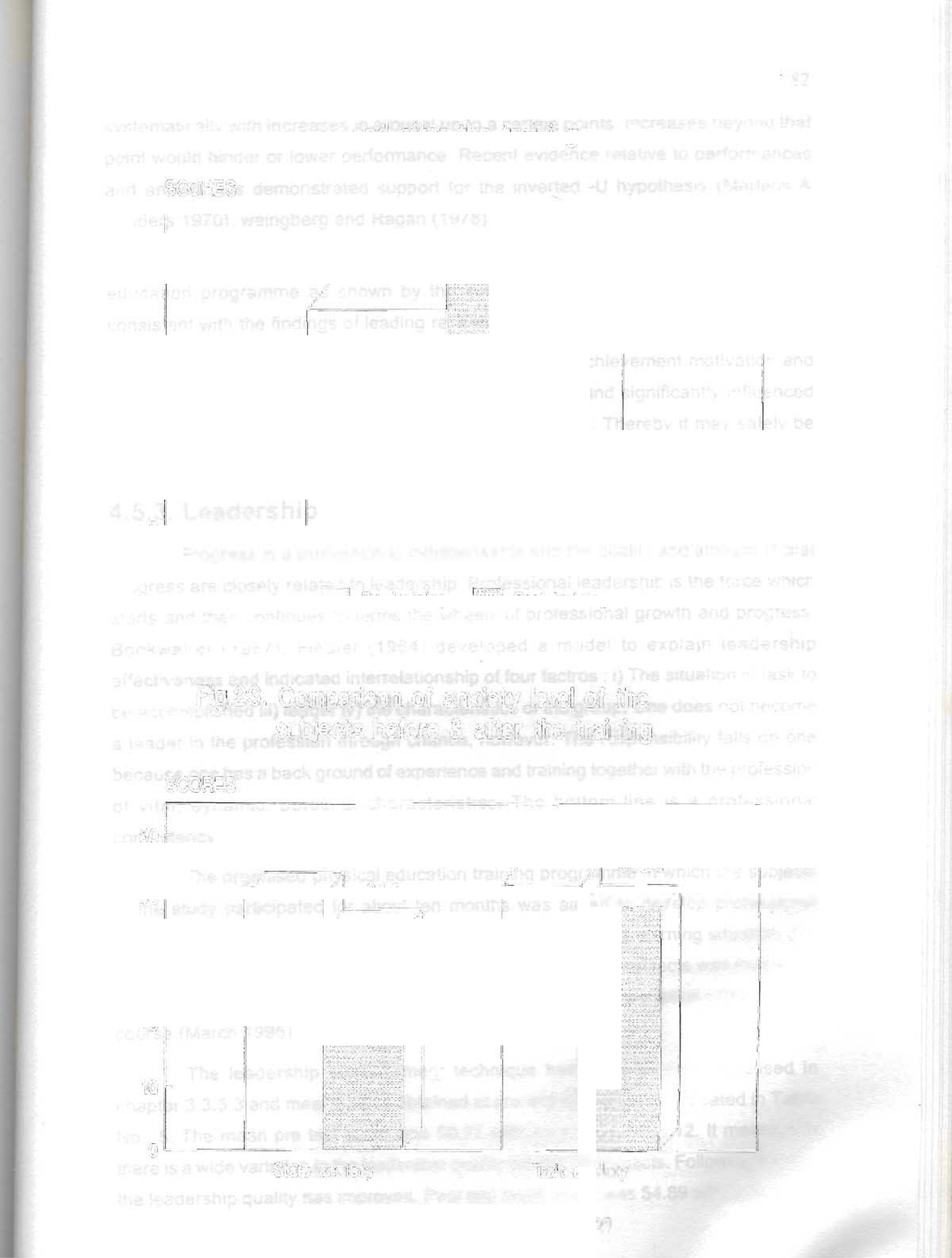
4.3.2. Rhythmical activity

In rhythmic group subjects participated in two different types of activities. These were LAZIUM (a classical indian light apparatus drill in combination with

Fig. 1. Comparison of performance in the rhythmical activities before &



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4.6.1. Reaction Time.

response. Physical activity particularly on the chronic type might be expected to influence cognitive factors which would otherwise diminish with age. Reaction time measures provide a broad index of how effectively the central nervous system is functioning. In the present study reaction time both simple and choice have been used as a measure of psychophysiological reactivity.

he data collected according to the procedure mentioned in the chapter No - pre and post test are

able - 9 Mean and SD of the pre and post test data of Psycho-physiological reactivity and their comparison.

	Post Test	SED	Obtained 't' value
Reaction Time (S)	341.11 ± 43.37		7.64*
Reaction Time (C)	425 32.76	392 19.52	4.90 6.73*
Skin Conductance	1.12 ± .19	92 .13	.03 6.67*

* Significant

4.6.1.1. Simple Reaction Time.

It appears from the Table No-9 that mean pre test score of simple reaction time was 341.11 ms ± 43.37 ms and in the post test mean score reduced to 312.22