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Effects of Resistant Training on the Performance of Musculer Endurance and Cardiovasculer Endurance Among the 14-18 Years Male Soccer Players

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Abstract

Background: The Purpose Of The Study Was To Find The Effects Of Resistant Training On The Performance Of Muscular Endurance And Cardiovascular Endurance Among The 14-18 Years Male Soccer Players.

Method-100 male students from the different schools of the Burdwan district were randomly selected as subjects and there age were 14-18 years served as four resistant training like Harness Running group (HRG), second group served as Sand Running group (SRG), third group served as Weight-Jacket Running group (WJRG), fourth group served as Weight training group (WTG) and the fifth group served as Control group (CTG).Ten weeks training were given for experiment accordingly. The control group was not given any training except of their routine. The selected subjects were measure of the following physical fitness components of Muscular Endurance and Cardiovascular Endurance. ANCOVA was calculation for statistical treatment.

Finding: From the finding implies that the Weight training group was more effective in increasing the number of pull-up than all other training groups the and Weight training group was more effective than all other groups in 600 yard run/walk

Conclusions: In Muscular Endurance Weight Jacket Group showed higher adjusted post-test mean difference with Control Group in comparison to other three training groups which is 1.24 higher than the critical difference 0.77 require to be significant at 0.05 levels.

In Cardiovascular Endurance Weight Training Group showed higher adjusted post-test mean difference with Control Group in comparison to other three training groups which is 0.07, higher than the critical difference 0.04 required being significant at 0.05 levels.

Keywords: Harness Running, Sand Running, Weight-Jacket Running, Weight training, agility, Muscular Endurance and Cardiovascular Endurance.

Introduction

It is useless to dominate a match in the beginning because at superior skill only to lose it eventually Special care is required if the ball is in goal area and the ground is heavy. The ball is liable to stick in a pool, and both attackers and defenders should reckon with this possibility. Since the ball becomes greasy on a muddy or slippery ground, the goalkeeper is bound to heavy difficulty in clutching and holding.

"In soccer it is vital that the players have endurance, for because the players become exhausted and can no longer perform well". A lack of endurance results in fatigue which diminishes several elements of good performance such as timing coordination, reaction time, general alertness and concentration. Since increased endurance delays the onset of fatigue, it therefore improves the overall performance during the match.

Strength deserves considerable attention for soccer players. Players need to produce power when kicking a ball for long distance or shooting at the goal, when changing direction against their own momentum or that for an opponent, when accelerating quickly or jumping. Unfortunately, many people associate strength development and weight training with muscle, bound individuals who are slow and have every limit flexibility. Research in the area of muscular development has shown this to be a misconception. Soccer players can work at improving their strength and power to play more effectively.

Weight training is a scientific and systematic process to develop the muscular strength and muscular power. Weight training is not only through of as an end in itself, but as a means to an end. The primary objective is not

to learn but to lift as many weights are application to the relevant sports. If a person does not do the weight training with a sincere effort, there will be a little or no game in strength.

A successful athletic programmed is based on round foundation. No team can excel in soccer without a sound foundation and all athletes need proper training to ensure proper development of foundation and the fundamentals of the sports. Competitive sports are an important part of modern physical education in our nation. It comprises competitive sports for leading sportsmen and Competitive sports for the rising generation of athletes. Children young people and adult strive for the highest standards of performance in a particular sport, take part in systematic training and shape their way of life accordingly.

Delimitation

1. The study will be delimited to the hundred male students of 14-18 years of age.
2. The study will confine six test items related to physical fitness components of muscular strength and cardio respiratory endurance.
3. The study will be delimited of Burdwan district school level soccer players.

Limitation

Socio-economic and cultural status of the subjects the factors like diet, life - style daily routine, habits etc. This might affect the result of the study and will not be controlled.

Statement Of The Problem

Effects of Resistant Training on the Performance of Muscular Endurance and Cardiovascular Endurance among the 14-18 Years Male Soccer Players.

Selection Of The Subject

100 (one hundred) junior division soccer players were selected as the subject for the study.On the basis of the list of junior division soccer players of Burdwan District, West Bengal, given by the Honorable General Secretary of Burdwan District Sporting Association, different club secretaries were requested by through letters and the Researcher met them personally to make them sent 10 to 20 players following the random sampling method from each school to act as subjects for this study on a particular date in the stadium ground, Burdwan. The players were assembled in the ground. The importance, procedure and significance of the study were explained to them in brief and were asked to act spontaneously as subjects. Different types of incentives were announced to motivate and encourage them to continue the training programmed and to take part in the tests at their level best. The subjects were selected at random basis. The data on physical fitness components (50 yard dash, Standing broad jump, Shuttle run, Pull-up, Sit-ups, 600 yard dash,) and soccer skills variables (dribbling, shooting and kicking) of all the subjects were collected and composite physical fitness and soccer skills scores of each subject were computed. On the basis of the composite scores the whole group was equally scattered into five groups. The first group named Group –A served for Harness Running, the second named Group-B for training on Sand Running, the third group named Group-C for training on Weight-Jacket Running, the fourth group named Group-D for training on Weight training and the fifth group named Group-E as the Control group. Subjects within the age group of 14-18 years were selected. They were medically tested before starting of the training programmed.

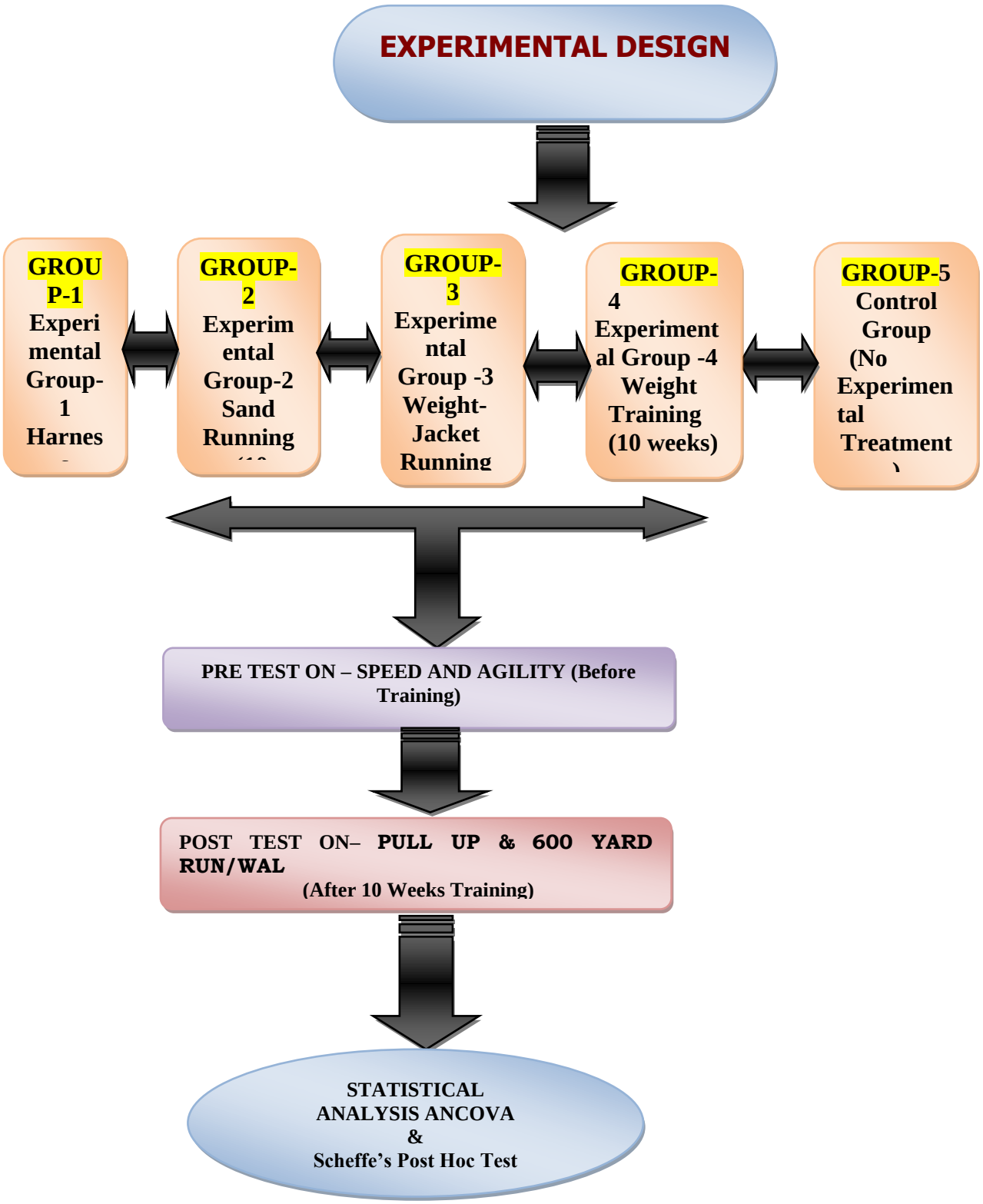
Training Schedule

For the present study the experimental design was adopted on the basis of random group design. Equal numbers of tasks were assigned randomly to five groups of twenty subjects each. The experimental treatments were also assigned randomly for the four experimental groups (A, B, C, D) and control group E. The four experimental groups were administered four different kinds of training programmers for the development of physical fitness and soccer skills. The first group was trained with the method of Harness Running (group-A) the second group with the Sand Running (group-B), the third group with Weight – Jacket Running (group-C), the fourth group with Weight – Training (group-D). The distance chosen for each of the training was 80 meters. The training session was conducted thrice a week i.e. on Monday, Wednesday, Friday, for Harness Running and Sand Running Group and Tuesday, Thursday, Saturday for Weight – Jacket Running Group and Weight–Training group. Test programmers were taken before and after an experimental period of 10 weeks. The subjects were advised not to take part in any voluntary sports programmers or unusual physical exhaustion so that physical activities remained uniform for all the groups chosen for the study. All the tests were administered from 6-

30A.M.to about 9-30 A.M. in foot ball ground. The physical fitness and soccer skill test administered to the subjects and explained as under.

Statistical Analysis

The differences between the initial and final test in speed and Agility *among* were subjected to statistical treatment using Analysis of Covariance (ANCOVA) to find out whether the mean differences were significant or not. The Scheffe's post hoc test was used to find out the paired means significance difference.



STATISTICAL PROCEDURE

In order to compare the effects of training on Harness Running, Sand Running, Weight Jacket Running and Weight training on Pull-up and 600 yard dash of district level male soccer players analysis of Co-Variance (F ratio) was applied. The level of significance was set at 0.05 level of confidence.

Result And Discussion

Results on pull up

Table - 1ANALYSIS OF CO-VARIANCE OF FOUR EXPERIMENTAL GROUPS AND CONTROL GROUP ON PULL UP

Mean	Harness running group	Sand running group	Weight jacket running group	Weight training group	Control group	Sum of square		df	Mean sum of square	F-ratio
Pre test	7.45	7.75	8.6	7.7	9.35	A	49.86	4	12.46	1.25
						W	942.25	95	9.918	
Post test	9.25	9.55	10.25	9.8	9.8	A	10.86	4	2.71	0.38
						W	674.85	95	7.10	
Adjusted post test	9.79	9.86	9.92	10.15	8.91	A	17.65	4	4.41	2.95*
						W	140.3	94	1.49	

*Significant at 0.05 level F.05 (4, 95) =2.46 F.05 (4, 94) =2.47

N=100 (number of subjects), A= Among mean variance, W= Within group variance

Table 1 and figure 1 reveals insignificant difference in Pull Up ability among four experimental and one control group Soccer players in pre as well as post-test phases ('F' = 1.25 for the pre-test and 0.38 for post-test means < 2.47 at 4, 95 df) whereas significant difference is observed in adjusted post-test mean ('F' = 2.95 > 2.47 at 4, 95 df) at 0.05 level of confidence. In the case of pre-test mean almost uniform mean values of four experimental groups i.e. Harness Running Group (7.45), Sand Running Group (7.75), Weight Jacket Running Group (8.6), Weight Training Group (7.7) and Control Group (9.35) are found and thereby indicated no significant difference. In the case of post-test means also except the mean values of Harness Running Group (9.25), Sand Running Group (9.55), Weight Jacket Running Group (10.25), Weight Training Group (9.8) and Control Group (9.8) are found, which also indicate no significant difference among the group.

On other hand in the case of adjusted post-test mean remarkable significant difference in Pull up mean value among four experimental group and one control group soccer players are noticed, where Weight Training Group mean value (10.15) is found to be highest which was significant at 0.05 level of confidence is followed by mean value of Weight Jacket Running Group (9.92) in comparison to the mean value of harness Running Group (9.79), Sand Running Group (9.86) and Control Group (8.91).

As the significance difference in Pull-up among four experimental and one control group in adjusted post-test mean are observe. The scheffe's post-hoc-test was computed to find out the existence of significance difference in pair group means, which is presented in table 2.

Table – 2 POST HOC MEAN DIFFERENCE COMPARISON OF FOUR EXPERIMENTAL GROUPS AND CONTROL GROUP ON PULL UP

Harness running group	Sand running group	Weight jacket group	Weight training group	Control group	Mean difference	Critical difference
9.79	9.86				0.07	0.77
9.79		9.92			0.13	0.77
9.79			10.15		0.36	0.77
9.79				8.91	0.88*	0.77
	9.86	9.92			0.06	0.77
	9.86		10.15		0.29	0.77
	9.86			8.91	0.95*	0.77
		9.92	10.15		0.23	0.77
		9.92		8.91	1.01*	0.77
			10.15	8.91	1.24*	0.77

*Significant at 0.05 level

Table 2 reveals significant difference in five out of ten paired group means.

The paired group means, which showed significant difference between Harness Running Group and Control Group (0.88 > 0.77) between Sand Running Group and Control Group (0.95 > 0.77) between Weight Jacket Running Group and Control Group (1.01 > 0.77) between Weight Training Group and Control Group (1.24 > 0.77) at 0.05 level of confidence. No significant difference were found between paired group mean namely between Harness Running Group and Sand Running Group (0. 07 < 0.77) between Harness Running Group and Weight Jacket Running Group (0.13 < 0.77) between Harness Running Group and Weight Training Group (0.36 < 0.77) between Sand Running Group and Weight Jacket Running Group (0.06 < 0.77) between Sand Running Group and Weight Training Group (0.29 < 0.77) between Weight Jacket Running Group and Weight Training Group (0.23 < 0.77) are observed.

The Graphical representation of mean comparison of Pull up for four experimental group and one control group after ten weeks of experimental programmed is presented in figure – 1.

MEAN COMPARISON OF FOUR EXPERIMENTAL GROUPS AND CONTROL GROUP ON PULL UP

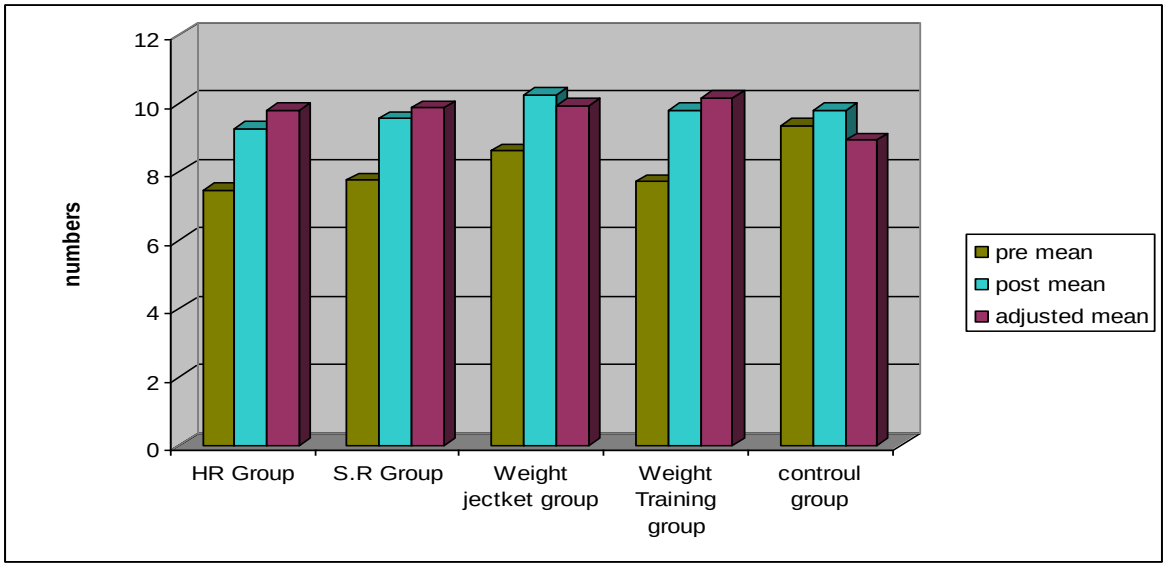


Figure- 1

Here it is clearly observe that the highest number of Pull Up was done by Control Group in pre-test data followed by Weight Jacket Running Group, Sand Running Group, Weight Training Group and Harness Running Group respectively. The highest number of Pull Up was done by Weight Jacket Running Group in post-test data followed by, Control Group, Weight Training Group, Sand Running Group and Harness Running Group respectively. The highest adjusted mean value was found in Weight Training Group followed by Weight Jacket Running Group, Sand Running Group, Harness Running Group and Control Group respectively.

Table - 3ANALYSIS OF CO-VARIANCE OF FOUR EXPERIMENTAL GROUPS AND CONTROL GROUP ON 600 YARD RUN/WALK

Mean	**Harness running group**	**Sand running group**	**Weight jacket running group**	**Weight training group**	**Control group**	**Sum of square**		**Df**	**Mean sum of square**	**F-ratio**
Pre test	1.92	1.97	2.06	2.07	2.10	A	0.477	4	0.11	1.23
						W	9.18	95	0.09	
Post test	1.89	1.95	2.05	2.01	2.11	A	0.55	4	0.13	1.46
						W	8.92	95	0.093	
Adjusted post test	2.00	2.00	2.01	2.03	1.96	A	0.05	4	0.01	2.68*
						W	0.49	94	0.005	

*Significant at 0.05 level F.05 (4, 95) =2.46 F.05 (4, 94) =2.47

* N=100 (number of subjects) * A= Among mean variance * W= within group variance

Table 3 and figure 2 reveals insignificant difference in 600 Yard Run/Walk ability among four experimental and one control group Soccer players in pre as well as post-test phases ('F' = 1.23 for the pre-test and 1.46 for post-test means < 2.47 at 4, 95 df) whereas significant difference is observed in adjusted post-test mean ('F' = 2.68 > 2.47 at 4, 95 df) which was significant at 0.05 level of confidence .

In the case of pre-test mean almost uniform mean values of four experimental groups i.e. Harness Running Group (1.92), Sand Running Group (1.97), Weight Jacket Running Group (2.06), Weight Training Group (2.07) and Control Group (2.10) are found and thereby indicated no significant difference.

In the case of post-test means also except the mean values of Harness Running Group (1.89), Sand Running Group (1.95), Weight Jacket Running Group (2.05), Weight Training Group (2.01) and Control Group (2.11) are found, which also indicate no significant difference among the group.

On other hand in the case of adjusted post-test mean remarkable significant difference in 600 Yard Run/Walk mean value among four experimental group and one control group soccer players are noticed, where Weight Training Group mean value (2.03) is found to be highest which is followed by mean value of Weight Jacket Running Group (2.01) in comparison to the mean value of Harness Running Group (2.00), Sand Running Group (2.00) and Control Group (1.96).Which were significant at 0.05 level of confidence with the df at 4, 95

As the significance difference in 600 Run/Walk among four experimental and one control group in adjusted post-test mean are observe. The scheffe's post-hoc-test was computed to find out the existence of significance difference in pair group means, which is presented in table 4.

Table – 4 POST HOC MEAN DIFFERENCE COMPARISON OF FOUR EXPERIMENTAL GROUPS AND CONTROL GROUP ON 600 YARD RUN/WAL

Harness running group	**Sand running group**	**Weight jacket group**	**Weight training group**	**Control group**	**Mean difference**	**Critical difference**
2.00	2.00				0	0.04
2.00		2.01			0.01	0.04
2.00			2.03		0.03	0.04
2.00				1.96	0.04	0.04
	2.00	2.01			0.01	0.04
	2.00		2.03		0.03	0.04
	2.00			1.96	0.04	0.04
		2.01	2.03		0.02	0.04
		2.01		1.96	0.05*	0.04
			2.03	1.96	0.07*	0.04

*Significant at 0.05 level

Table 4 reveals significant difference in five out of ten paired group means.

The paired group means, which showed significant difference between Weight Jacket Running Group and Control Group (0.05 > 0.04) between Weight Training Group and Control Group (0.07 > 0.04) at 0.05 level of confidence. No significant difference between paired group mean namely between Harness Running Group and Sand Running Group (0 < 0.04) between Harness Running Group and Weight Jacket Running Group (0.01 < 0.04) between Harness Running Group and Weight Training Group (0.03 < 0.04) between Harness Running Group and Control Group (0.04 = 0.04) between Sand Running Group and Weight Jacket Running Group (0.01 < 0.04) between Sand Running Group and Weight Training Group (0.03 < 0.04) between Sand Running Group and Control Group (0.04 = 0.04) between Weight Jacket Running Group and Weight Training Group 0.02 < 0.04) are observed.

The Graphical representation of mean comparison of 600 Yard Run/Walk for four experimental group and one control group after ten weeks of experimental programmed is presented in figure – 2.

Mean Comparison Of Four Experimental Groups And Control Group On 600 Yard Run/Walk

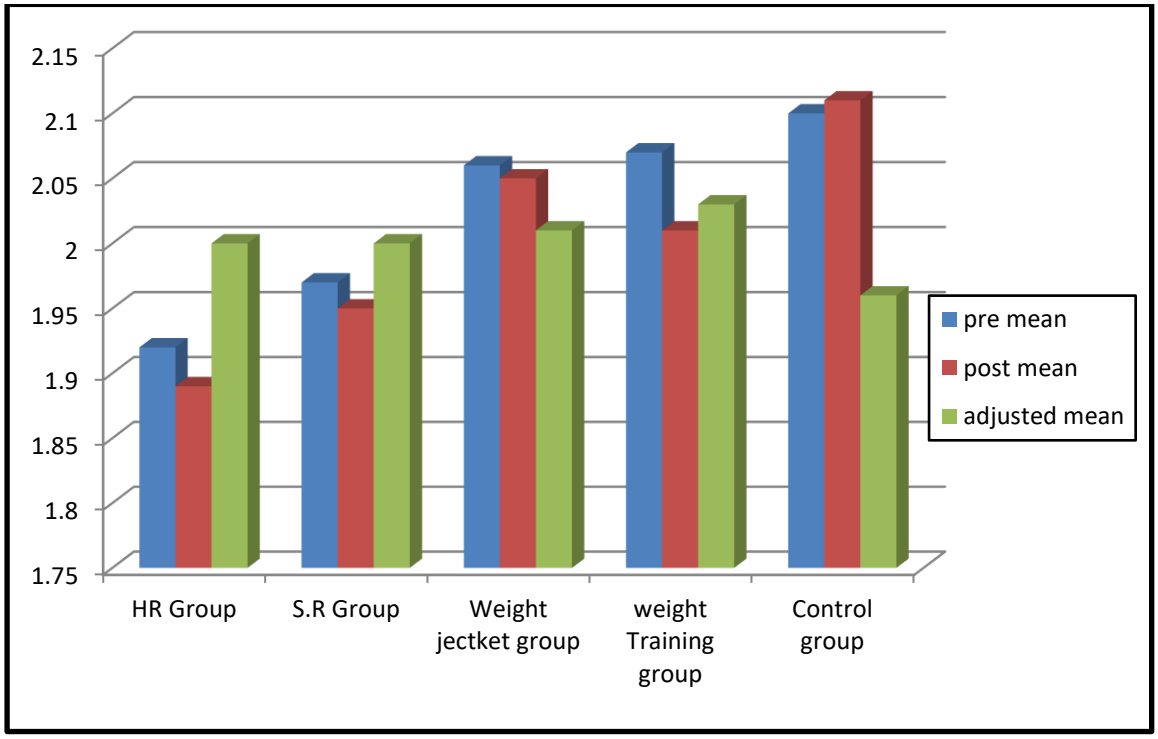


Figure- 2

Here it is clearly observe that the highest running rime was taken by Control Group in pre-test data followed by Weight Training Group, Weight Jacket Running Group, Sand Running Group and Harness Running Group respectively. The highest running time was taken by Control Group in post-test data followed by Weight Jacket Running Group, Weight Training Group, Sand Running Group and Harness Running Group respectively. The lowest adjusted mean value was found in Control Group followed by Harness Running Group, Sand Running Group, Weight Jacket Running Group and Weight Training Group respectively.

Conclusions

Within the limitations imposed by the subjects and experimental condition and on the basis of the results of this study, the following conclusions were drawn.

1. Weight training group was more effective in increasing the number of pull-up than all other training groups.

2. Weight training group was more effective than all other groups in 600 yard run/walk.

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