



ISSN: 2456-0057

IJPNPE 2019; 4(1): 2453-2458

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www.journalofsports.com

Received: 19-11-2018

Accepted: 24-12-2018

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Effects of harness running, sand running, weight - jacket running and weight training on the performance of pull up and standing broad jump 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 Harness Running, Sand Running, Weight-Jacket Running and Weight training on the performance of pull up and standing broad jump among the Burdwan District School going soccer players.

Method: 100 male students from the different schools of the Burdwan district were randomly selected as subjects and their age were 14-18 years served as 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 measured the physical fitness component of muscular strength. ANCOVA was calculation for statistical treatment.

Finding: From the finding implies that the Weight Training Group and Weight Jacket Group were more effective in increasing the number of pull up and distance than all other training programs after ten weeks of training on pull up and standing broad jump.

Conclusions: In both training programme Weight-Jacket Running Group and Weight Training Group showed higher adjusted post-test mean difference with Control Group in comparison to other three training Groups which is required to be significant at 0.05 levels.

Keywords: harness running, sand running, weight-jacket running, weight training, muscular

Introduction

Soccer (association football) is a ball game played by two teams, each of 11 players. The object of the game is to put the ball into the opponent's goal, and the winning team is the one that scores the greater number of goals. The game of football is also called soccer. It requires lot of strength and skill. It is an interesting game for both of the players and the spectators.

The game of football is both an art and science. It involves techniques of running, passing, kicking, tackling, blocking, heading, and dribbling. All these activities have obtained to be performing a great speed. Though the individuals' skills are very important but it should not be forgotten that it is a team game and the players have to work together during the match offence and defense. A player must, therefore, develop his skill and understanding for his contribution in favor to the demands of team game.

"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.

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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.

Statement of the problem

The purpose of the study was to find the effects of Harness Running, Sand Running, Weight-Jacket Running and Weight training on the performance of pull up and standing broad jump among the 14-18 years male soccer players.

Procedure

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 of Standing broad jump and Pull-

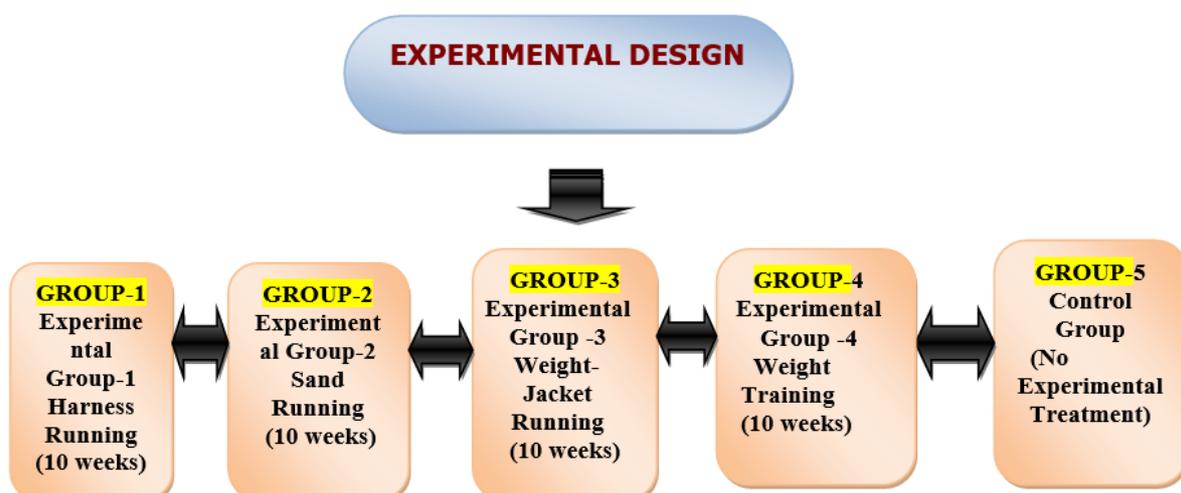
up all the subjects were collected and composite physical fitness of each subject were computed. On the basis of the composite scores the whole group was equally scattered into five groups. The first group named Group –A served for Harness Running, the second named Group-B for training on Sand Running, 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.

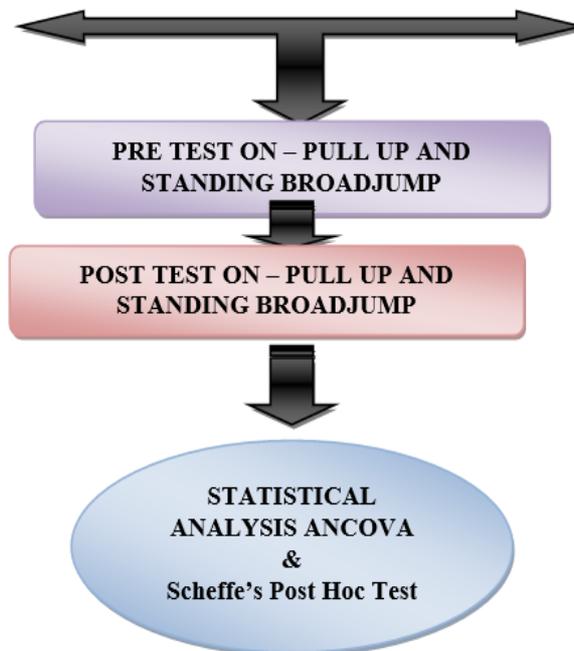
Training Schedule

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 *pull up and standing broad jump 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.





Result and Discussion

Results on pull up

The statistical analysis comparing the initial and final means of pull up due to the purpose of the study was to find the

effects of Harness Running, Sand Running, Weight-Jacket Running and Weight training on the performance of pull up among the 14-18 years male soccer players. Pull up are presented in Table I.

Table 1: Analysis 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.

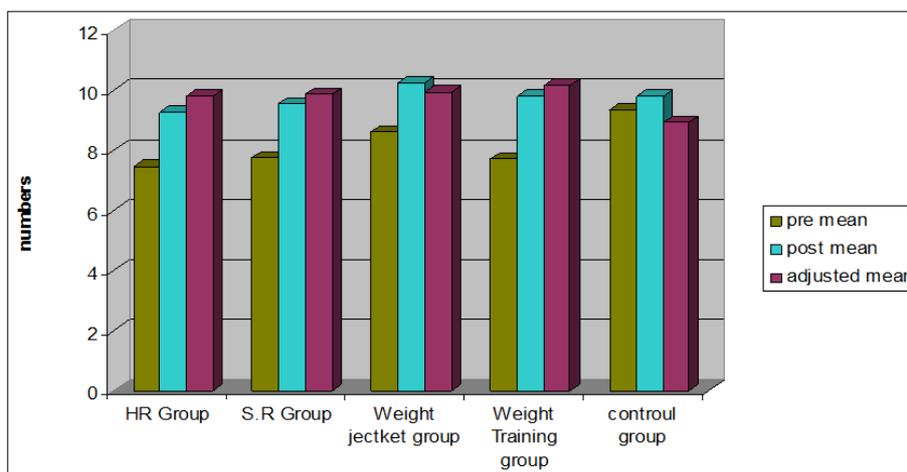


Fig 1: Mean comparison of four experimental groups and control group on pull up

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.

Discussion of Finding

The Paired group means which, showed significant difference are between Weight Training Group and Harness Running Group between Weight Training and Sand Running Group between Weight Training Group and Weight Jacket Running Group and between Weight Training Group and Control Group.

In all the cases of significant difference the presence of Weight Training Group (10.15) is common – i.e. Weight Training Group and Harness Running Group (10.15 > 9.79) Weight Training Group and Sand Running Group (10.15 > 9.86) Weight Training Group and Weight Jacket Running Group (10.15 > 9.92) Weight Training Group and Control Group (10.15 > 8.91). The mean value of Weight Training Group is responsibly higher then that of the Harness Running Group, Sand Running Group Weight Jacket Running Group and Control Group. The mean value of Weight Jacket Running Group is found to be second best followed by Sand Running Group, Harness Running Group and Control Group. 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. Here it is interesting to know that the Pull Up ability of all five groups was improved. It may be due to the motivational factory of the subjects during training.

Table 3: Analysis of co-variance of four experimental groups and control group on standing broad jump

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
						A	W			
Pre test	2.066	2.04	2.067	2.10	2.18	A	0.22	4	0.056	1.07
						W	4.98	95	0.524	
Post test	2.11	2.099	2.125	2.13	2.17	A	0.66	4	0.015	0.31
						W	4.70	95	0.049	
Adjusted post test	2.13	2.14	2.15	2.12	2.08	A	0.04	4	0.010	2.84*
						W	0.36	94	0.003	

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

Table – 3 and Figure – 2 reveal insignificant difference in Standing Broad Jump ability among four experimental and one Control Group soccer players in pre as well as post test phases ('F' = 1.07 for pre-test and 0.31 for post-test means < 2.47 at 4, 95 df) whereas significant difference is observe in adjusted post-test mean ('F' = 2.84 > 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 (2.066), Sand Running Group (2.04), Weight Jacket Running Group (2.067), Weight Training Group (2.10) and Control Group (2.18) are found and thereby indicated no significant difference.

In the case of post-test means also except the mean values of Harness Running Group (2.11), Sand Running Group (2.099), Weight Jacket Running Group (2.125), Weight Training

Group (2.13) and Control Group (2.17) 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 Standing Broad Jump mean value among four experimental group and one control group soccer players are noticed, where Weight Jacket Running Group mean value (2.15) is found to be highest which is followed by mean value of Sand Running Group (2.14) in comparison to the mean value of Harness Running Group (2.13), Weight Training Group (2.12) and Control Group (2.08).

As the significance difference in standing broad jump 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 significant 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 standing broad jump

Harness running group	Sand running group	Weight jacket group	Weight training group	Control group	Mean difference	Critical difference
2.13	2.14				0.01	0.03
2.13		2.15			0.02	0.03
2.13			2.12		0.01	0.03
2.13				2.08	0.67*	0.03
	2.14	2.15			0.01	0.03
	2.14		2.12		0.02	0.03
	2.14			2.08	0.06*	0.03
		2.15	2.12		0.03	0.03
		2.15		2.08	0.07*	0.03
			2.12	2.08	0.04*	0.03

*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 Harness Running Group and Control Group (0.67 > 0.03) between Sand Running Group and Control Group (0.06 > 0.03) between Weight Jacket Running Group and Control Group (0.07 > 0.03) between Weight Training Group and Control Group (0.04 > 0.03) at 0.05 level of confidence.

No significant differences were found between paired group mean namely between Harness Running Group and Sand Running Group (0. 01 < 0.03) between Harness Running

Group and Weight Jacket Running Group (0.02 < 0.03) between Harness Running Group and Weight Training Group (0.01 < 0.03) between Sand Running Group and Weight Jacket Running Group (0.01 < 0.03) between Sand Running Group and Weight Training Group (0.02 < 0.03) between Weight Jacket Running Group and Weight Training Group (0.03 = 0.03) are observed. The Graphical representation of mean comparison of Standing Broad Jump for four experimental group and one control group after ten weeks of experimental programmed is presented in figure – 2.

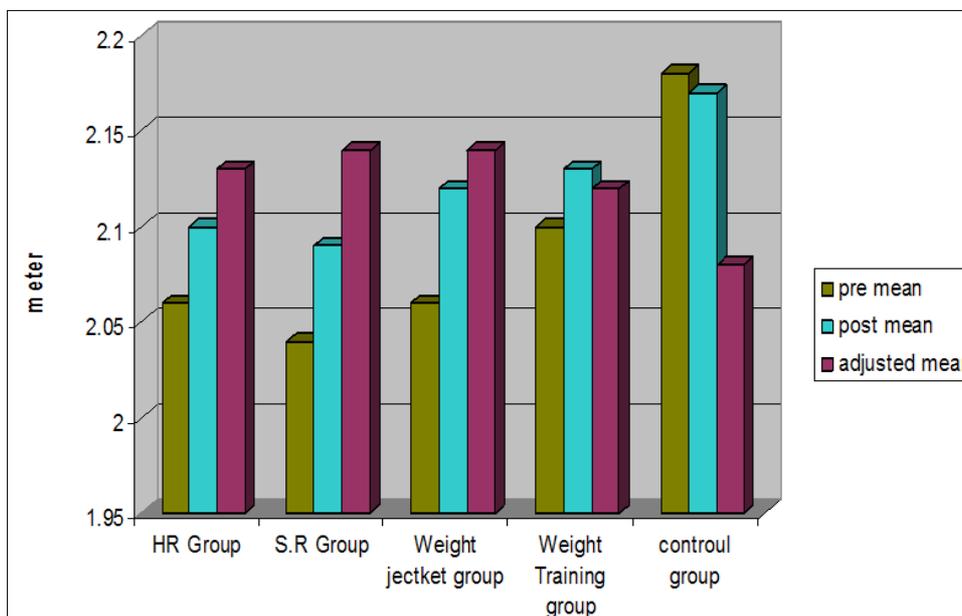


Fig 2: Mean comparison of four experimental groups and control group on standing broad jump

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

Discussion of Finding

The paired group means which showed significant difference between Weight Jacket Group and Harness Running Group between Weight Jacket Group and Sand Running Group between Weight Jacket Group and Weight Training Group between Weight Jacket Group and Control Group. In all the cases of significant differences are found to be the presence of Weight Jacket Group (2.15) common – i.e. Weight Jacket Group and Harness Running Group (2.15 > 2.13) Weight Jacket Group and Sand Running Group (2.15 > 2.14) Weight Jacket Group and Weight Training Group (2.15 > 2.12) Weight Jacket Group and Control Group (2.15 > 2.08). The mean value of weight Jacket Group is responsible higher then that of the Harness Running, Sand Running Group, Weight Training Group and Control Group. The mean value of Sand Running Group is found to be second best followed by the Harness Running Group, Weight Training Group and Control Group. Weight-Jacket Group showed higher adjusted post-test mean difference with Control Group in comparison to other three training Groups which is 0.07 then the critical difference 0.03 required to be significant at 0.05 level

Interestingly it was observe that the jumping ability of Control Group was declined and it may be due to the practice factory of the subjects.

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 Jacket group was more effective in increasing the distance of standing broad jump than all other training groups.

References

1. Arpad Csanadi, Soccer 3rd Ed. Budapest: Athenaeum Printing House 1978, 260-262.
2. Beim, Principles of Modern Soccer 194-195.
3. Harold M. Barrow and Rosemary Mac - Gee A Practical Approach to Measurement in Physical Education. Philadelphia: Lea and Febiger 1971, 123.
4. Hooks, Application of Weight Training to Athletics, 19.
5. Dr. Dietrich Harre, principle of Sports Training. Sportverlag Berline 1982, 5-20.
6. Hamak Harli' A. The Effect of Selected Progressive Resistance Running Programme on Circulo-respiratory Efficiency Power and Free Running Speed Completed Research in Health, Physical Education and Recreation 1968;10(1968):98.
7. Buck Besuard V. A comparison of two programmes of weight training in regred to their effects upon the development of muscular strength and endurance

Completed Research in Health, Physical Education and Recreation 1963;5(1963):89.

8. Capen, Edward K. The Effect of Systematic weight Training on Power, Strength and Endurance Research Quarterly 1950, 83.
9. Corbett John J. The effects of different frequencies of weight training on muscular strength Completed Research in Health, Physical Education and Recreation 1970;12(1970):273.
10. Oliver, Kenneth S. Jr. A comparison of conditioning exercise relative to performance in rope climbing Completed Research in Health, Physical Education and Recreation 1963;5(1963):39.
11. Singh AK, Uppal, Jagdev. Comparative Effect of Harness Running and Weight Jacket Running on Leg Strength, Length of Stride and Sprinting Speed Snipes Journal 1986;6(1986):47.
12. Kamlesh ML, Sangral MS. Principle and History of Physical Education Ludhiana: Prakash Brothers 1981, 108.