
Effects of Harness Running, Sand Running, Weight - Jacket Running and Weight Training on the Performance of Speed and Agility among The 14-18 years Male Soccer Players

Nazrul Islam Mallick ^{1*}

^{1*} Assistant Professor, Dept. of Physical Education, Durgapur Govt. College, Durgapur, West Bengal India, e-mail: nazrulmallick @gmail.com

Abstract

The purpose of this study is to assess the present information and communication technology and the contemporary use of electronic information resources in college libraries under Vidyasagar University. The survey technique has been used using structured questionnaire and with the help of Librarian to obtain the required data. From the analyzed data, it is found that a majority of colleges located in rural areas, some colleges have good number of students, all the colleges have librarians, most of the colleges are shifting from manual to automation process, and maximum of them are using Koha software. N-List is the only subscribed source of e-books and e-journals in maximum colleges. There are many problems like lack of professionally skilled library staff, low budget for e-resource subscription, poor network connectivity, and space problem for making e-zone for the users etc. The study will be helpful to evaluate the present situation of the ICT and use of electronic resources such as e-journals, e-books etc. by the users of the college libraries in Vidyasagar University.

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. 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.

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 speed and Agility *among* the 14-18 years male soccer players.

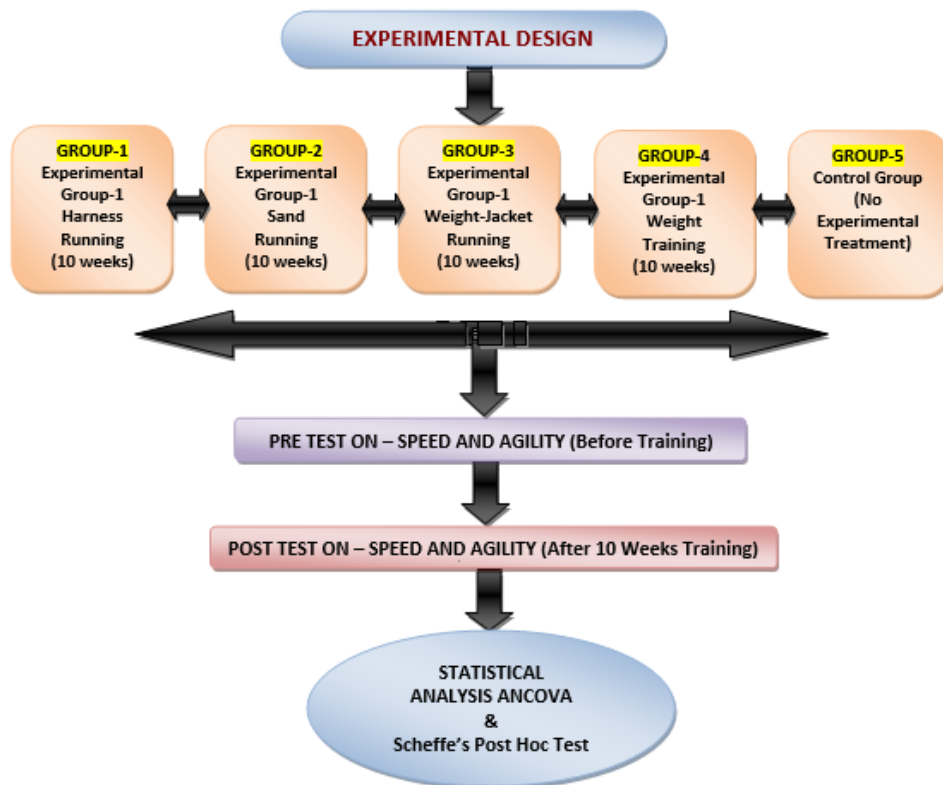
TRAINING SCHEDULE

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.



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 speed and Agility 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 50 YARD DASH

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	7.78	8.14	7.96	7.95	8.18	A	2.30	4	0.57	1.77
						W	30.80	95	0.32	
Post test	7.82	8.12	7.94	7.93	8.40	A	4.10	4	1.02	3.32*
						W	29.34	95	0.30	
Adjusted post test	8.01	7.99	7.972	7.97	8.24	A	1.08	4	0.27	2.86*
						W	8.89	94	0.094	

*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

Table 1 and figure 1 reveals insignificant difference in 50 Yard Dash ability among four experimental and one control group Soccer players in pre -test mean ('F' = 1.77 < 2.47 at 4, 95 df) and where as significant difference in post-test mean ('F' = 3.32 > 2.47 at 4, 95 df) where as significant difference is observed in adjusted post-test mean ('F' = 2.86 > 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 (7.78), Sand Running Group (8.14), Weight - Jacket Running Group (7.96), Weight Training Group (7.95) and Control Group (8.18) are found and thereby indicated no significant difference. In the case of post-test means also except the mean values of Harness Running Group (7.82), Sand Running Group (8.12), and Weight - Jacket Running Group (7.94), Weight Training Group (7.93) and Control Group (8.40) are found, which also indicate significant difference among the group. On other hand in the case of adjusted post-test mean remarkable significant difference in 50 Yard Dash mean value among four experimental groups and one control group soccer players are noticed which was significant at 0.05 level of confidence. Where control group mean value (8.24) is found to be highest which is followed by mean value of Harness Running Group (8.01) in comparison to the mean value of Sand Running Group (7.99), Weight - Jacket Running Group (7.972) and Weight Training Group (7.97) which were significant at 0.05 level of confidence with the df at 4, 95.

As the significance difference in 50 yard dash 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 COMP OF FOUR EXPERIMENTAL GROUPS AND CONTROL GROUP ON 50 YARD DASH

Harness running group	Sand running group	Weight - jacket group	Weight training group	Control group	Mean difference	Critical difference
8.01	7.99				0.02	0.2
8.01		7.972			0.04	0.2
8.01			7.97		0.04	0.2
8.01				8.24	0.23*	0.2
	7.99	7.972			0.018	0.2
	7.99		7.97		0.02	0.2
	7.99			8.24	0.25*	0.2
		7.972	7.97		0.0020	0.2
		7.972		8.24	0.268*	0.2
			7.97	8.24	0.27*	0.2

*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 ($0.23 > 0.2$) between Sand Running Group and Control Group ($0.25 > 0.2$) between Weight Jacket Running Group and Control Group ($0.268 > 0.2$) between Weight Training Group and Control Group ($0.27 > 0.2$) at 0.05 level of confidence. No significant difference between paired group mean namely between Harness Running Group and Sand Running Group ($0.02 < 0.2$) between Harness Running Group and Weight Jacket Running Group ($0.04 < 0.2$) between Harness Running Group and Weight Training Group ($0.04 < 0.2$) between Sand Running and Weight Jacket Running ($0.018 < 0.2$) between Sand Running Group and Weight Training Group ($0.02 < 0.2$) between Weight Jacket Running Group and Weight Training Group ($0.0020 < 0.2$) are observed.

The Graphical representation of mean comparison of 50 Yard Dash for four experimental group and one control group after ten weeks of experimental programmed is presented in figure – 1. Here it is clearly observed that the highest running time was taken by Control Group in pre-test data followed by Sand Running Group, Weight Jacket Running Group, Weight Training Group and Harness Running Group respectively. The highest running time was taken by Control Group in post-test data followed by Sand Running Group, Weight Jacket Running Group, Weight Training Group and Harness Running Group respectively. The highest 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.

MEAN COMPARISON OF FOUR EXPERIMENTAL GROUPS AND CONTROL GROUP ON 50 YARD DASH

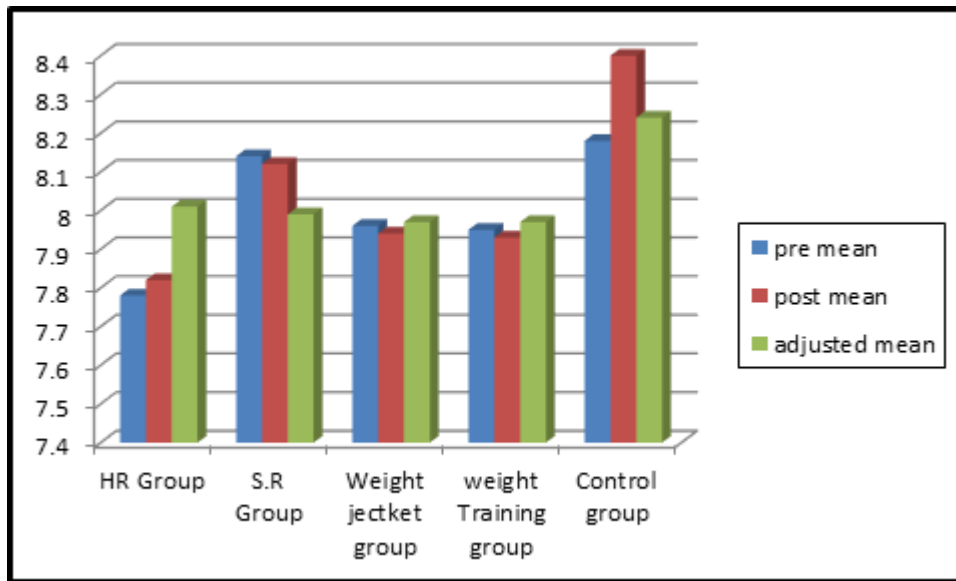


Figure – I

Discussion of Finding

Table – 1 and Figure 1 reveals that there is no significant difference in pre test phases among four experimental and one control group of soccer player.

Further from the Table - 2 in paired group mean difference the existence of significant difference in five out of ten paired group means are noticed. The paired group means differences are between control group and Harness Running Group between Control Group and Sand Running Group between Control Group and Weight Jacket Group and between Control Group and Weight Training Group were found significant at .05 levels. In all the cases of significant difference the presence of Control Group (8.24) is common – i.e. Control Group and Harness Running Group ($8.24 > 8.01$) Control Group and Sand Running Group ($8.24 > 7.99$) Control Group and Weight Jacket Running Group ($8.24 > 7.972$) Control Group and Weight Training Group ($8.24 > 7.97$). The mean value of control Group is responsibility higher then that of the Harness Running Group, Sand Running Group, Weight Jacket Running Group, Weight Training Group. The mean of Harness Running Group is found to be second best, followed by Sand Running, Weight Jacket Running and Weight Training Group respectively. Weight Training Group showed higher adjusted post-test mean difference with Control Group

in comparison to other three training Groups which is 0.27 then the critical difference 0.2 required to be significant at 0.05 levels.

Here it is interesting to know that the speed ability of Harness running group was decline after training period and it may be due to the motivation factory of the subjects.

Table - 3

ANALYSIS OF CO-VARIANCE OF FOUR EXPERIMENTAL GROUPS AND CONTROL GROUP ON SHUTTLE RUN

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	10.72	10.83	10.65	10.67	11.03	A	1.97	4	0.49	0.80
						W	57.81	95	0.60	
Post test	10.61	10.74	10.52	10.60	11.13	A	4.75	4	1.18	2.02
						W	55.73	95	0.58	
Adjusted post test	10.67	10.69	10.64	10.70	10.91	A	0.88	4	0.22	2.56*
						W	8.09	94	0.086	

*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 reveals in significant difference in shuttle run ability among four experimental and one control group soccer players in pre as well as post test phases ('F' = 0.80 for pre-test and 2.02 for post-test means < 2.47 at 4, 95 df) whereas the significant difference was observe in adjusted post-test mean ('F' = 2.56 > 2.47 at 4, 95 df). Which was significant at 0.05 level of confidence at 4, 95 df. In the case of pre-test mean almost uniform mean values of four experimental groups i.e. Harness Running Group (10.72), Sand Running Group (10.83), Weight Jacket Group (10.65), Weight Training Group (10.67) and Control Group (11.03) are found which were not significant. In the case of post-test means also except the mean values of Harness Running Group (10.61), Sand Running Group (10.74), Weight Jacket Running Group (10.52), Weight Training Group (10.60) and Control Group (11.13) are found, which also indicate no significant difference among the group.

On the other hand in the case of adjusted post-test mean remarkable significant difference in shuttle run mean value among four experimental and one control group soccer players are noticed, where Control Group mean value (10.91) is found to be highest which is followed by mean value of Weight Training Group (10.70) in comparison to mean value of Sand Running Group (10.69), Harness Running Group

(10.67), and Weight Jacket Running Group (10.64). Which were significant at 0.05 level of confidence at 4, 95 df.

As the significance difference in Shuttle run 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 SHUTTLE RUN

Harness running group	Sand running group	Weight jacket group	Weight training group	Control group	Mean difference	Critical difference
10.67	10.69				0.02	0.18
10.67		10.64			0.03	0.18
10.67			10.70		0.03	0.18
10.67				10.91	0.24*	0.18
	10.69	10.64			0.05	0.18
	10.69		10.70		0.01	0.18
	10.69			10.91	0.22*	0.18
		10.64	10.70		0.06	0.18
		10.64		10.91	0.27*	0.18
			10.70	10.91	0.21*	0.18

*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 ($0.24 > 0.18$) between Sand Running Group and Control Group ($0.22 > 0.18$) between Weight Jacket Running Group and Control Group ($0.27 > 0.18$) between Weight Training Group and Control Group ($0.21 > 0.18$) at 0.05 level of confidence. No significant difference were found between paired group mean namely between Harness Running Group and Sand Running Group ($0.02 < 0.18$) between Harness Running Group and Weight Jacket Running Group ($0.03 < 0.18$) between Harness Running Group and Weight Training Group ($0.03 < 0.18$) between Sand Running Group and Weight Jacket Running Group ($0.05 < 0.18$) between Sand Running Group and Weight Training Group ($0.01 < 0.18$) between Weight Jacket Running Group and Weight Training Group ($0.06 < 0.18$) 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.

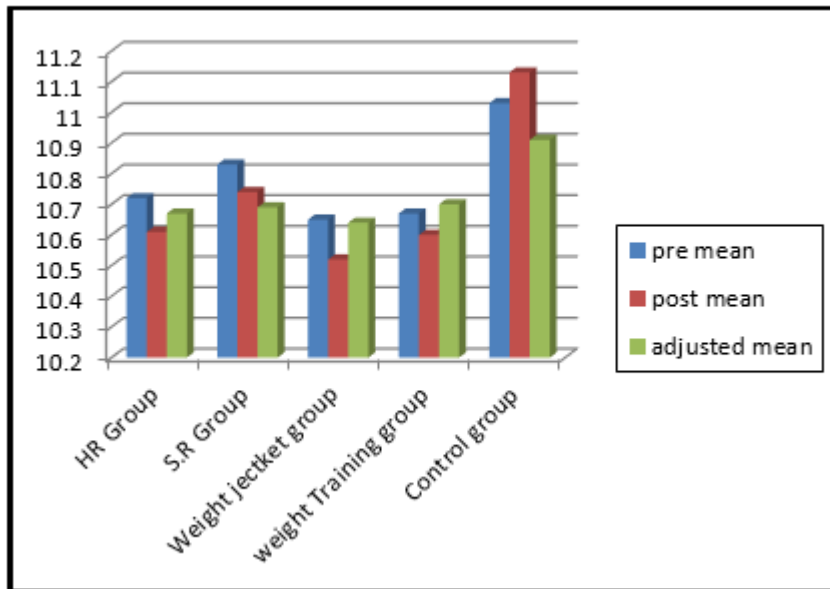
MEAN COMPARISON OF FOUR EXPERIMENTAL GROUPS AND CONTROL GROUP ON SHUTTLE RUN


Figure-2

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

Discussion of Finding

Table- 4 reveals significant difference in five out of ten paired group mean. The Paired group means which, showed significant difference are between Control Group and Harness Running Group between Control Group and Sand Running Group between Control Group and Weight Jacket Running Group and between Control Group and Weight Training Group. In all the cases of significant differences are found to be the presence of Control Group (10.91) is common – i.e. Control Group and Harness Running Group (10.91 > 10.67) Control Group and Sand Running Group (10.91 > 10.69) Control Group and Weight Jacket Running Group (10.91 > 10.64) Control Group and Weight Training Group (10.91 > 10.70). The mean value of Control Group is responsibly

higher than that of the Harness Running Group, Sand Running Group Weight Training Group and Weight Jacket Running Group. The mean value of Weight Training Group is found to be second best followed by Sand Running Group, Harness Running Group and Weight Jacket Running Group respectively. The finding implies that Weight Jacket Group was more effective in decreasing the time taken than all other training programs after ten weeks of training on Shuttle Run.

Weight-Jacket Group showed higher adjusted post-test mean difference with Control Group in comparison to other three training Groups which is 0.27 then the critical difference 0.18 required to be significant at 0.05 levels.

Here it is interesting to know that the speed ability of four experimental groups was improved except Control Group. It may be due to training.

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. The speed ability of Harness running group was decline after 10 weeks training programmed of all other training groups and it may be due to the motivation factory of the subjects.
2. The agility ability of Weight Jacket group was increasing more after 10 weeks training programmed of all other training groups and it may be due to the motivation factory of the subjects.

REFERANCE

1. Arpad Csanadi, Soccer 3rd Ed. (Budapest: Athenaeum Printing House, 1978), PP. 260 – 262.
2. Beim, Principles of Modern Soccer. P.P.194 – 195
3. Harold M. Barrow and Rosemary Mac – Gee A Practical Approach to Measurement in Physical Education. (Philadelphia: Lea and Febiger, 1971) P.123.
4. Hooks, Application of Weight Training to Athletics, P.19.
5. Dr. Dietrich Harre, principle of Sports Training. (Sportverlag Berline 1982) p.p.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 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 5 (1963): 89.

-
8. Capen, Edward K. "The Effect of Systematic weight Training on Power, Strength and Endurance" Research Quarterly 21 (May 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 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 5 (1963): 39.
 11. Singh, A.K. Uppal and Jagdev. "Comparative Effect of Harness Running and Weight Jacket Running on Leg Strength, Length of Stride and Sprinting Speed" SNIPES Journal 6 (April, 1986): 47
 12. M.L. Kamlesh and M.S. Sangral, Principle and History of Physical Education (Ludhiana: Prakash Brothers" 1981), p108.