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EFFECT OF SAND TRAINING AND SPRINGBOARD TRAINING ON SELECTED STRIDE FREQUENCY AND MUSCULAR ENDURANCE AMONG LONG DISTANCE RUNNERS

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Abstract: The Aim of the study was to find out the the Effect Of Sand Training And Springboard Training On Selected Stride Frequency And Muscular Endurance among Long Distance Runners Randomly selected long distance runners (N=60) . Each group consisted of twenty subjects (n=20). Before the training pre-test was taken for all the groups on the selected criterion variables, stride length muscular endurance. The control group did not undergo any type of training. Sand training was given to the experimental group-I and springboard training was given to the experimental group-II on alternate days in the morning for a period of twelve weeks. At the end of experimental period, the post-test was conducted and data collected on criterion variables. The difference between the initial and final means of the groups was considered as the effect of respective treatments. The data obtained were subjected to statistical treatment using ANCOVA. In all cases 0.05 level was fixed to test the significance.

Index Terms - **Stride Frequency And Muscular Endurance**

I. INTRODUCTION

In general usage, the term “training” is used to denote different things. In the broad sense, training today is used to mean any organized instruction whose aim is to increase man’s physical psychological, intellectual or mechanical performance rapidly. In the field of sport we speak of training in the sense of preparing sportsman for the highest levels of performance.

The training is a process of preparing an individual for any event or an activity or job. Training for competitive sports is particularly effective way of developing the personality.

According to Dietrich Harre (1982), Sports training is a process of athletic improvement, which is conducted on the basis of scientific principles through which systematic development of mental and physical efficiency, capacity and motivation enables athletes to produce outstanding and record breaking athletic performance. Sports training also consists of all those learning influences and processes that are aimed of enhancing sports performance.

II. STATEMENT OF THE PROBLEM

The Purpose Of This Study Was To Find Out Effect of Sand Training And Springboard Training on Selected Stride Frequency and Muscular Endurance among Long Distance Runners

III. LIMITATIONS

This study was limited in the following respect and these limitations would be taken in consideration while interpreting the result.

1. The experiment was conducted on Long Distance Runners selected from different colleges in Andhra Pradesh, who represented their colleges in intercollegiate level tournaments.
2. Selection of subjects is between 18 to 24 years of age only.
3. There was no control over the diet, environment, etc., in this study.
4. Regular activities pertaining to their day to day affairs were not controlled.

IV. DELIMITATIONS

To achieve the objectives of the study, the investigator delimited the following factors:

1. This study was conducted only on 60 male Long Distance Runners.
2. The experimental period was only twelve weeks.
3. The subjects were selected from Long Distance Runners of different colleges in Andhra Pradesh.
4. Sand training was limited to running, jumping, zig-zag running etcetera on beach sand.
5. The spring board training on a rebounder or a mini trampoline is considered for this study.
6. Springboard training was limited to jumping, diving, trampoline bounce, trampoline prances, trampoline, squats etcetera.
7. The following dependent and independent variables were selected for this study:

Dependent Variables

1. Stride frequency
2. Muscular Endurance

Independent Variables

1. Twelve Weeks Sand training
2. Twelve Weeks Springboard training

V. SELECTION OF SUBJECTS

The subjects taken for the present study were sixty men Long Distance Runners from different colleges in Andhra Pradesh, who had represented their college in the inter-collegiate Athletics competitions. The subjects were selected on a random basis and were allotted to three groups (control, sand training and springboard training) by random assignment. The age of the subjects ranged from 18 to 24 years with mean age of 21 years.

The requirements of the experimental procedures, testing as well as exercise schedules were explained to them so as to avoid any ambiguity of the effort required on their part and prior to the administration of the study, the investigator got the individual consent from each subject.

VI. SELECTION OF VARIABLES

Dependent Variables

1. Stride Frequency
2. Muscular Endurance

Independent Variables

1. Twelve Weeks Sand training
2. Twelve Weeks Spring board training

VII. EXPERIMENTAL DESIGN

The primary responsibility of the investigator is to adopt the appropriate experimental methodology before proceeding with data collection. A pre-test - post-test randomized group design was used. Each group consisted of twenty subjects (n=20). Before the training pre-test was taken for all the groups on the selected criterion variables stride frequency, and muscular endurance. The control group did not undergo any type of training. Sand training was given to the experimental group-I and springboard training was given to the experimental group-II on alternate days in the morning for a period of twelve weeks. At the end of experimental period, the post-test was conducted and data collected on criterion variables. The difference between the initial and final means of the groups was considered as the effect of respective treatments. The data obtained were subjected to statistical treatment using ANCOVA. In all cases 0.05 level was fixed to test the significance.

VIII. CRITERION MEASURES

By glancing the literature, and in consultation with professional experts, the following variables were selected as the criterion measures in this study.

1. Stride frequency was calculated as suggested by Seagrave, L. (1996).
2. Muscular endurance was measured through push-ups test.

Table-I
Reliability Co-efficient of Correlation for Test – Retest

S.No.	VARIABLES	Coefficient Correlation
1	Stride Frequency	0.81*
2	Muscular Endurance	0.88*

Since the obtained correlation values were more than the tabulated value of r, the reliability of tests were considered reliable at 0.01 level of confidence.

Results on Stride Frequency

The statistical analysis comparing the initial and final means of Stride frequency due to Sand training and Spring board training among Long Distance Runners is presented in Table-II

Table-II

ANCOVA RESULTS ON EFFECT OF SAND TRAINING AND SPRING BOARD TRAINING COMPARED WITH CONTROLS ON STRIDE FREQUENCY

	SAND TRAINING	SPRING BOARD TRAINING	CONTROL GROUP	SOURCE OF VARIANCE	SUM OF SQUARES	df	MEAN SQUARES	OBTAINED F
Pre-Test Mean	3.76	3.80	3.84	Between	0.07	2	0.03	4.65*
				Within	0.42	57	0.01	
Post-test Mean	3.81	3.84	3.84	Between	0.01	2	0.01	0.760
				Within	0.42	57	0.01	
Adjusted Post-test Mean	3.85	3.84	3.80	Between	0.03	2	0.01	17.51*
				Within	0.04	56	0.001	
Mean Diff.	0.05	0.03	-0.01					

Table F-ratio at 0.05 level of confidence for 2 and 57 (df) =3.16, 2 and 56 (df) =3.16.
*Significant at 0.05 level

As shown in Table-II, the obtained pre-test means on Stride frequency on Sand training group was 3.76, Spring board training group was 3.80 was and control group was 3.84. The obtained pre-test F-value was 4.65 and the required table F-value was 3.16, which proved that there was significant difference among initial scores of the subjects.

The obtained post-test means on Stride frequency on Sand training group was 3.81, Spring board training group was 3.84 was and control group was 3.84. The obtained post-test F-value was 0.760 and the required table F-value was 3.16, which proved that there was significant difference among post-test scores of the subjects.

Taking into consideration of the pre-test means and post-test means adjusted post-test means were determined and analysis of covariance was done and the obtained F-value 17.51 was greater than the required value of 3.16 and, hence it was accepted that there was significant differences among the treated groups.

Since significant differences were recorded, the results were subjected to post-hoc analysis using Scheffe's Confidence Interval test. The results were presented in Table-III

Table-III

Multiple Comparisons of Paired Adjusted Means and Scheffe's Confidence Interval Test Results on Stride frequency

MEANS				Required C.I.
Sand training Group	Spring board training Group	Control Group	Mean Difference	
3.85	3.84		0.01	0.02
3.85		3.80	0.05*	0.02
	3.84	3.80	0.04*	0.02

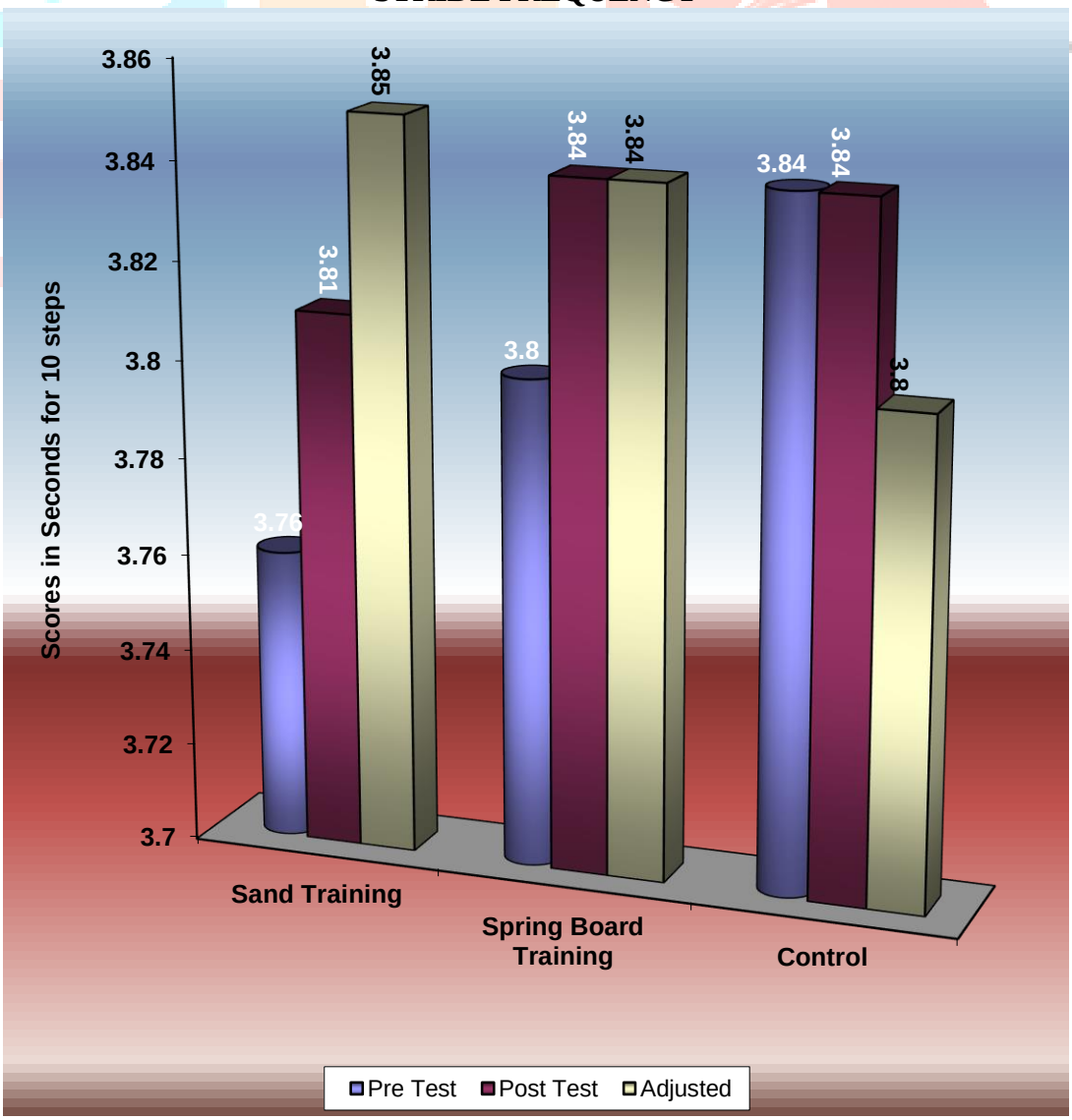
***** Significant at 0.05 level

The post-hoc analysis of obtained ordered adjusted means proved that there was significant differences existed between Sand training group and control group (MD: 0.05). There was significant difference between Spring board training group and control group (MD: 0.04). There was no significant difference between treatment groups, namely, Sand training group and Spring board training group. (MD: 0.01).

The ordered adjusted means were presented through bar diagram for better understanding of the results of this study in Figure-I

Figure-I

BAR DIAGRAM SHOWING PRE-TEST, POST-TEST AND ORDERED ADJUSTED MEANS ON STRIDE FREQUENCY



Results on Muscular Endurance

The statistical analysis comparing the initial and final means of Muscular endurance due to Sand training and Spring board training among Long Distance Runners is presented in Table-IV

Table-IV

ANCOVA RESULTS ON EFFECT OF SAND TRAINING AND SPRING BOARD TRAINING COMPARED WITH CONTROLS ON MUSCULAR ENDURANCE

	SAND TRAINING	SPRING BOARD TRAINING	CONTROL GROUP	SOURCE OF VARIANCE	SUM OF SQUARES	df	MEAN SQUARES	OBTAINED F
Pre-test Mean	30.40	30.70	31.35	Between	9.43	2	4.72	0.22
				Within	1219.55	57	21.40	
Post-test Mean	32.25	32.80	31.60	Between	14.43	2	7.22	0.41
				Within	1011.75	57	17.75	
Adjusted Post-test Mean	32.62	32.90	31.12	Between	36.47	2	18.24	29.45*
				Within	34.68	56	0.62	
Mean Diff.	1.85	2.10	0.25					

Table F-ratio at 0.05 level of confidence for 2 and 57 (df) =3.16, 2 and 56 (df) =3.16.
*Significant at 0.05 level

As shown in Table-IV the obtained pre-test means on Muscular endurance on Sand training group was 30.40, Spring board training group was 30.70 was and control group was 31.35. The obtained pre-test F-value was 0.22 and the required table F-value was 3.16, which proved that there was no significant difference among initial scores of the subjects.

The obtained post-test means on Muscular endurance on Sand training group was 32.25, Spring board training group was 32.80 was and control group was 31.60. The obtained post-test F-value was 0.41 and the required table F-value was 3.16, which proved that there was no significant difference among post-test scores of the subjects.

Taking into consideration of the pre-test means and post-test means adjusted post-test means were determined and analysis of covariance was done and the obtained F-value 29.45 was greater than the required value of 3.16 and, hence it was accepted that there was significant differences among the treated groups.

Since significant differences were recorded, the results were subjected to post-hoc analysis using Scheffe's Confidence Interval test. The results were presented in Table-V

Table-V

Multiple Comparisons of Paired Adjusted Means and Scheffe's Confidence Interval Test Results on Muscular endurance

MEANS				Required C.I.
Sand training Group	Spring board training Group	Control Group	Mean Difference	
32.62	32.90		0.28	0.63
32.62		31.12	1.50*	0.63
	32.90	31.12	1.78*	0.63

***** Significant at 0.05 level

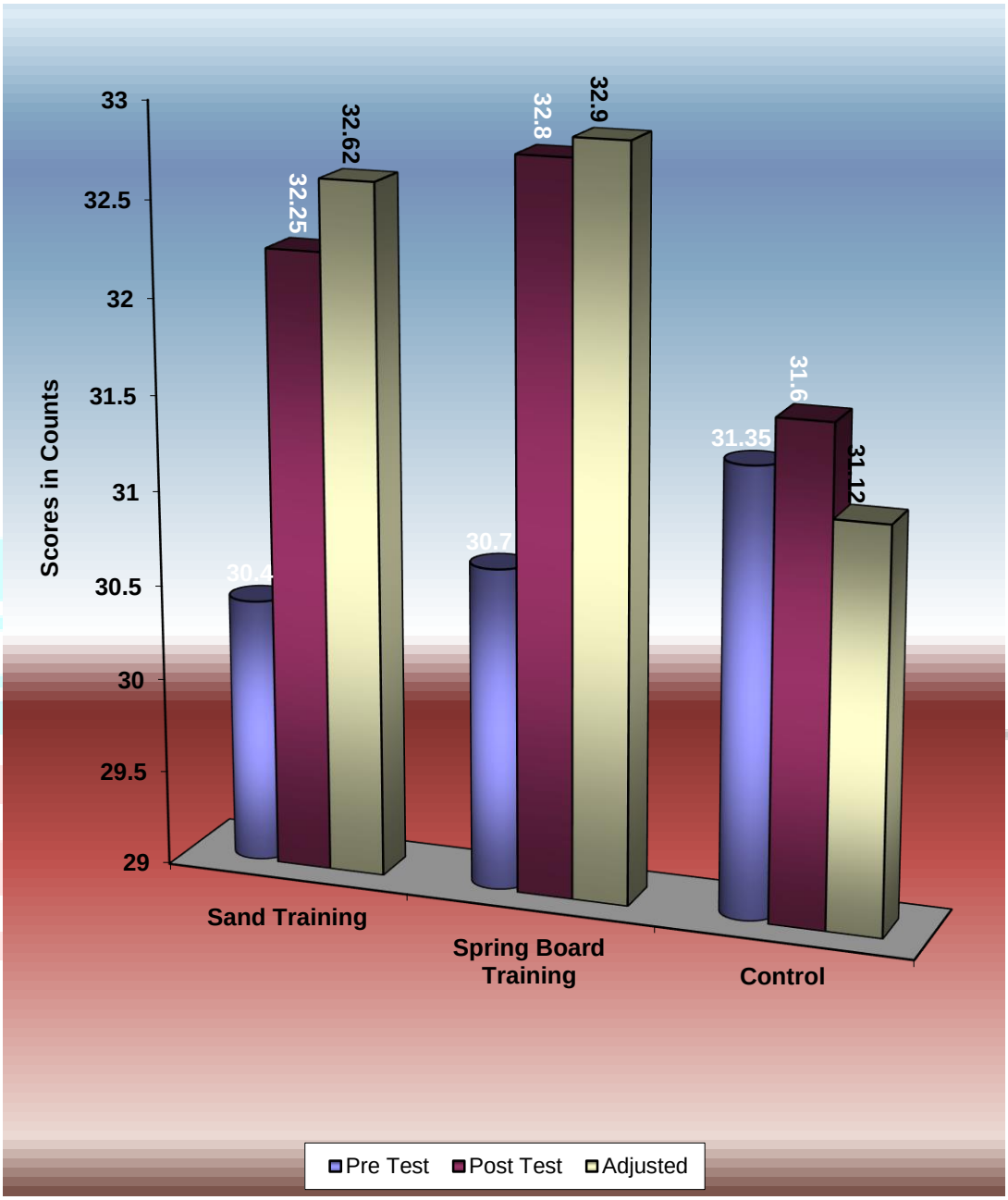
The post-hoc analysis of obtained ordered adjusted means proved that there was significant differences existed between Sand training group and control group (MD: 1.50). There was significant difference between Spring board training group and control group (MD: 1.78). There was no significant

difference between treatment groups, namely, Sand training group and Spring board training group. (MD: 0.28).

The ordered adjusted means were presented through bar diagram for better understanding of the results of this study in Figure-II

Figure-II

BAR DIAGRAM SHOWING PRE-TEST, POST-TEST AND ORDERED ADJUSTED MEANS ON MUSCULAR ENDURANCE



IX.CONCLUSIONS

Within the limitations and delimitations of the study, the following conclusions were drawn:

1. It was concluded that twelve weeks sand training and spring board training significantly improved stride frequency of the college level Long Distance Runners compared to control group. Comparison between treatment groups proved that there was no significant difference between sand training group and spring board training group in altering stride frequency of the Long Distance Runners.

2. It was concluded that twelve weeks sand training and spring board training significantly improved muscular endurance of the college level Long Distance Runners compared to control group. Comparison between treatment groups proved that there was no significant difference between sand training group and spring board training group in altering muscular endurance of the Long Distance Runners.

10.REFERENCES

Shyamal Kaloy, (2007), Exercise Physiology, New Delhi: Friends Publications, PP 1-2Bavcević T, et.al. (2008), "Development of biomotor characteristics and athletic abilities of sprint and throw in boys aged six to eight years.", Coll Antropol., 32(2):433-41.

Carpinett, R.N (2003) "The Effect of Varied Weight Training Programmes on Strength", 46.

Cavala M, et.al. (2008), « Biomotor structures in elite female handball players according to performance.", **Coll Antropol**., 32(1):231-9.

Clutch, D.Wittan M. Gown, C. and Bryce, G.R. (2001), "Effect of Depth Jumps and Weight Training on Leg Strength and Vertical Jump", **Research Quarterly,** 54 , pp 5-10

Delas S, et.al. (2007), "Effects of biomotor structures on performance of competitive gymnastics elements in elementary school female sixthgraders." **Coll Antropol**., 31(4):979-85.

Delas S, et.al. (2008), "Effects of biomotor structures on performance of competitive gymnastics elements in elementary school male sixthgraders.", **Coll Antropol**, . 32(2):443-9.

Dixon CB, et.al. (2006), "The effect of acute resistance exercise on serum malondialdehyde in resistance-trained and untrained collegiate men.", **J Strength Cond Res**.20(3):693-8

Durocher JJ, Leetun DT, and Carter JR. (2008). "Sport-specific assessment of lactate threshold and aerobic capacity throughout a collegiate hockey season.", **Appl Physiol Nutr Metab**. Dec;33(6):1165-71.

Faigenbaum AD, et.al. (2007), "Preliminary evaluation of an after-school resistance training program for improving physical fitness in middle school-age boys.", **Percept Mot Skills**. 04(2):407-15