



EFFECTS OF OWN BODY EXERCISES AND PLYOMETRIC TRAINING ON SELECTED SPEED AND BREATHHOLD TIME AMONG KHO-KHO PLAYERS

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Abstract: The Aim of the study was to find out the the effects of own body exercises and plyometric training on selected speed and breath hold time among Kho-Kho players. The study was formulated as a true random group design consisting of a pre-test and post test. The subjects (N=60) were randomly assigned to three equal groups of twenty. The selected subjects were divided into three groups randomly. Experimental Group I was considered as own body weight exercises group, experimental group II was considered as plyometric exercises group and control group was not involved in any special treatment. Pre test was conducted for experimental Groups I and II and the control group on all the eight variables selected for the study, namely, speed, and resting pulse rate and breath holding time. Experimental groups underwent the respective training for 12 weeks. Immediately after the completion of 12 weeks training, all the subjects were measured of their post test scores on the selected criterion variables. The difference between the initial and final scores was considered the effect of respective treatments. To find out statistical significance of the results obtained, the data were subjected to statistical treatment using ANCOVA. In all cases 0.05 level was fixed to test the significance of the study. *Index Terms* - Component, formatting, style, styling, insert.

KEYWORDS: Speed and Breath hold time

I. INTRODUCTION

A sport consists of a physical and mentally competitive activity carried out with a recreational purpose for competition, for self-enjoyment, to attain excellence, for the development of a skill, or some combination of these. A sport has physical activity, side by side competition, self-motivation and a scoring system. The difference of purpose is what characterizes sport, combined with the notion of individual (or team) skill or prowess (Anaheim , 1987).

II. STATEMENT OF THE PROBLEM

The purpose of the study would be to find out the Effects of Own Body Exercises and Plyometric Training on Selected Speed and Breathhold Time among Kho-Kho Players.

III. LIMITATIONS

Uncontrollable factors associated with the study were accepted as limitation and the following were considered as limitation of the research study:

1. Certain factors like rational habits such as life style, daily routine, diet and climatic conditions were not taken into account in the study.
2. The heterogeneous characters of the subjects in hereditary and environmental factors were recognized as a limitation.
3. The subject's body type and socio economic status of the students were not taken into consideration.

IV . DELIMITATIONS

1. Intercollegiate level Kho-Kho players who are participated in Acharya Nagarjuna University Inter collegiate tournaments were considered for the purpose of this study.
2. Kho-Kho players in the age group of 19 to 22 were selected for this study.
3. The following dependent and independent variables were selected for this study:

Dependent Variables

1. Speed
2. Breath holding time

Independent Variables

1. 12 Weeks Own Body weight exercise
2. 12 Weeks Plyometric Exercises

IV . SELECTION OF SUBJECTS

The purpose of the study is to find out the Effects of Own Body Exercises and Plyometric Training on Selected Speed and Breath hold Time among Kho-Kho Players. For this purpose intercollegiate level Kho-Kho players who participated at inter-collegiate level competitions were selected. 60 players in the age group of 19 to 22 were randomly selected as subjects for this study. The subjects were randomly selected into three groups, namely, experimental group I, experimental group II and control group consisting of 20 in each.

The subjects were oriented for the purpose of the study and all the subjects volunteered to undergo the treatments as the research would further enhance their abilities and contribute for the training methods.

SELECTION OF THE VARIABLES**Dependent Variables**

1. Speed
2. Breath Holding time

Independent Variables

1. 12 Weeks Own body weight Exercises
2. 12 Weeks Plyometric exercises

V. EXPERIMENTAL DESIGN

The study was formulated as a true random group design consisting of a pre-test and post test. The subjects (N=60) were randomly assigned to three equal groups of twenty. The selected subjects were divided into three groups randomly. Experimental Group I was considered as own body weight exercises group, experimental group II was considered as plyometric exercises group and control group was not involved in any special treatment. Pre test was conducted for experimental Groups I and II and the control group on all the eight variables selected for the study, namely, speed, and resting pulse rate and breath holding time. Experimental groups underwent the respective training for 12 weeks. Immediately after the completion of 12 weeks training, all the subjects were measured of their post test scores on the selected criterion variables. The difference between the initial and final scores was considered the effect of respective treatments. To find out statistical significance of the results obtained, the data were subjected to statistical treatment using ANCOVA. In all cases 0.05 level was fixed to test the significance of the study.

VI .CRITERION MEASURES

TABLE I
TESTS USED TO ASSESS THE BIOMOTOR ABILITIES, AND CARDIORESPIRATORY FITNESS VARIABLES

S.No	Variables	Tests	Units of Measure
1	Speed	50 M Run	Seconds
2	Breath Holding Time	Nose Clip Method	Seconds

Table II
INTRA CLASS CORRELATION BETWEEN TEST AND RETEST FOR TESTER RELIABILITY

S.No	Variables	Tests	Obtained 'r'
1	Speed	50 M Run	0.84*
2	Breath Holding Time	Nose Clip Method	0.79*

Required table value at 0.01 with 8 degrees of freedom 0.735

* Significant at 0.01 level

VII . ADMINISTRATION OF TESTS

SPEED (50 METERS DASH)

Purpose

The aim of this test was to determine acceleration and speed.

Equipment Required

Measuring tape and stopwatches.

Procedure

The test involved running a single maximum sprint over 50 meters with the time recorded. The subjects were warm up including some practice starts and accelerations. The subject started from a stationary standing position with one foot in front of the other. The front foot was kept behind the start line. Once the subject was ready and motionless, the starter gave the instructions "set" and "go.". The tester provided hints for maximizing speed (such as keeping low, driving hard with the arms and legs) and the subjects were encouraged not to slow down before crossing the finish line

Scores

Two trials were given and the best time was recorded to the nearest to one tenth of a second. The timing started from the first movement and stopped when the subject's chest crossed the finish line.

BREATH HOLDING TIME

Objective

The purpose of this test was to measure the breath holding time.

Equipments

For recording the breath holding time, a stop watch (1/10th of second) and nose clip were used.

Administration

The subject was instructed to stand at ease and to inhale deeply after which he holds his breath for a length of time possible by him. A nose clip was placed on nose to avoid letting the air through nostrils. The duration from the time of holding his breath until the movement he let air out was clocked by using the stop watch to the nearest one tenth of a second as breath holding time. The co-operation of the subject to let out the air by opening the mouth was sought to clock the exact breath holding time.

Scoring

The time is recorded in seconds and the beset of two trials were recorded

COMPUTATION OF ANALYSIS OF COVARIANCE AND POST

HOC TEST

RESULTS ON SPEED

The statistical analysis comparing the initial and final means of Speed due to Own body exercises and Plyometric training among Kho-Kho players is presented in Table III

Table III

COMPUTATION OF ANALYSIS OF COVARIANCE OF SPEED

	OWN BODY EXERCISES	PLYOMETRIC TRAINING	CONTROL GROUP	SOURCE OF VARIANCE	SUM OF SQUARES	df	MEAN SQUARES	OBTAINED F
Pre Test Mean	7.04	7.06	7.09	Between	0.03	2	0.01	0.40
				Within	1.81	87	0.03	
Post Test Mean	6.90	6.93	7.07	Between	0.34	2	0.17	5.33*
				Within	1.80	87	0.03	
Adjusted Post Test Mean	6.92	6.94	7.05	Between	0.19	2	0.09	24.79*
				Within	0.21	86	0.00	
Mean Diff	-0.13	-0.12	-0.01					

Table F-ratio at 0.05 level of confidence for 2 and 87 (df) =3.10, 2 and 86 (df) =3.10.

*Significant

As shown in Table III, the obtained pre test means on Speed on Own body exercises group was 7.04, Plyometric training group was 7.06 was and control group was 7.09. The obtained pre test F value was 0.40 and the required table F value was 3.10, which proved that there was no significant difference among initial scores of the subjects.

The obtained post test means on Speed on Own body exercises group was 6.90, Plyometric training group was 6.93 was and control group was 7.07. The obtained post test F value was 5.33 and the required table F value was 3.10, 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 24.79 was greater than the required value of 3.10 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 IV.

Table IV

Scheffe's Confidence Interval Test Scores on Speed

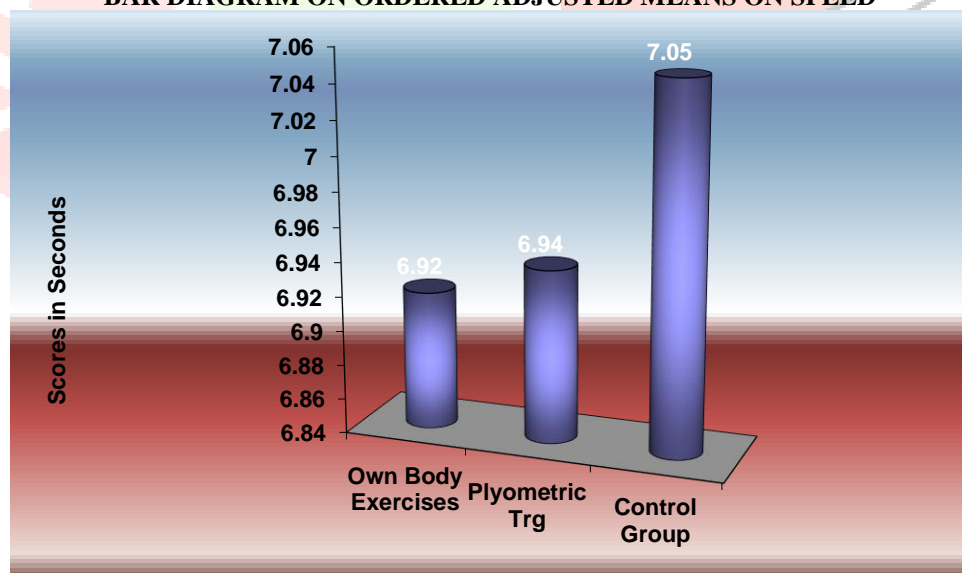
MEANS				Required . C I
Own body exercises Group	Plyometric training Group	Control Group	Mean Difference	
6.92	6.94		0.01	0.05
6.92		7.05	0.13*	0.05
	6.94	7.05	0.11*	0.05

* Significant

The post hoc analysis of obtained ordered adjusted means proved that there was significant differences existed between Own body exercises group and control group (MD: 0.13). There was significant difference between Plyometric training group and control group (MD: 0.11). There was significant difference between treatment groups, namely, Own body exercises group and Plyometric 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 ON ORDERED ADJUSTED MEANS ON SPEED



DISCUSSIONS ON FINDINGS ON SPEED

The effect of Own body exercises and Plyometric training on Speed is presented in Table XII. The analysis of covariance proved that there was significant difference between the experimental group and control group as the obtained F value 24.79 was greater than the required table F value to be significant at 0.05 level.

Since significant F value was obtained, the results were further subjected to post hoc analysis and the results presented in Table IV proved that there was significant difference between Own body exercises group and control group (MD: 0.13) and Plyometric training group and control group (MD: -0.11). Comparing between the treatment groups, it was found that there was no significant difference between Own body exercises and Plyometric training group among Kho-Kho players.

Thus, it was found that Own body exercises and plyometrics training were significantly better than control group in reducing Speed time and thereby improve speed of the Kho-Kho players.

RESULTS ON BREATH HOLDING TIME

The statistical analysis comparing the initial and final means of Breath holding time due to Own body exercises and Plyometric training among Kho-Kho players is presented in Table V

Table V
COMPUTATION OF ANALYSIS OF COVARIANCE OF BREATH HOLDING TIME

	OWN BODY EXERCISES	PLYOMETRIC TRAINING	CONTROL GROUP	SOURCE OF VARIANCE	SUM OF SQUARES	df	MEAN SQUARES	OBTAINED F
Pre Test Mean	39.20	39.15	39.65	Between	3.03	2	1.52	0.05
				Within	1686.30	87	29.58	
Post Test Mean	42.75	42.20	39.00	Between	164.03	2	82.02	3.11*
				Within	1502.95	87	26.37	
Adjusted Post Test Mean	42.87	42.36	38.72	Between	203.86	2	101.93	25.65*
				Within	222.55	86	3.97	
Mean Diff	3.55	3.05	-0.65					

Table F-ratio at 0.05 level of confidence for 2 and 87 (df) =3.10, 2 and 86 (df) =3.10.

*Significant

As shown in Table V, the obtained pre test means on Breath holding time on Own body exercises group was 39.20, Plyometric training group was 39.15 was and control group was 39.65. The obtained pre test F value was 0.05 and the required table F value was 3.10, which proved that there was no significant difference among initial scores of the subjects.

The obtained post test means on Breath holding time on Own body exercises group was 42.75, Plyometric training group was 42.20 was and control group was 39.00. The obtained post test F value was 3.11 and the required table F value was 3.10, 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 25.65 was greater than the required value of 3.10 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

Scheffe's Confidence Interval Test Scores on Breath holding time

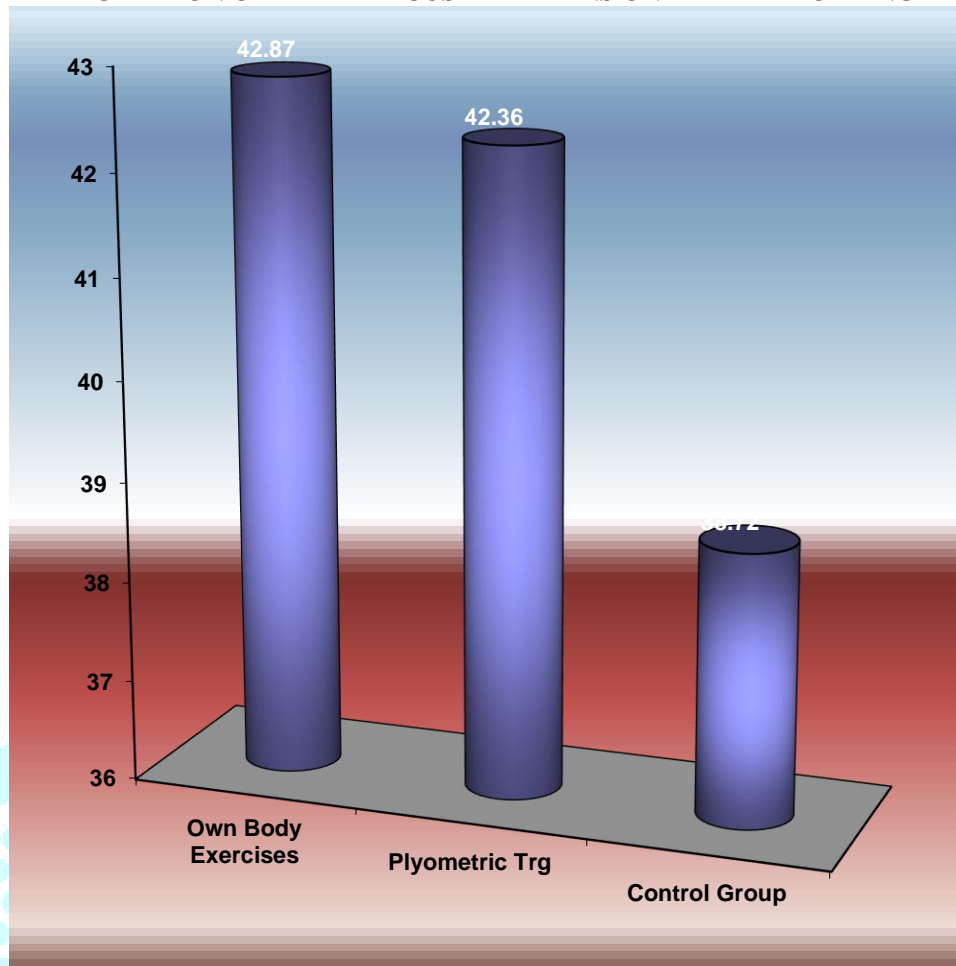
Own body exercises Group	MEANS			Required . C I
	Plyometric training Group	Control Group	Mean Difference	
42.87	42.36		0.51	1.58
42.87		38.72	4.14*	1.58
	42.36	38.72	3.64*	1.58

* Significant

The post hoc analysis of obtained ordered adjusted means proved that there was significant differences existed between Own body exercises group and control group (MD: 4.14). There was significant difference between Plyometric training group and control group (MD: 3.64). There was no significant difference between treatment groups, namely, Own body exercises group and Plyometric training group. (MD: 0.51).

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 ON ORDERED ADJUSTED MEANS ON BREATH HOLDING TIME



VIII. CONCLUSIONS

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

1. It was concluded that 12 weeks own body weight exercises and plyometric training significantly improved bio motor ability, such as, speed among Kho-Kho players compared to control group. Comparisons between the treatment groups proved that there was no significant difference on speed.
2. It was concluded that 12 weeks own body weight exercises and plyometric training significantly improved cardio respiratory fitness variable, such as, breath holding time among Kho-Kho players compared to control group. Comparisons between the treatment groups proved that there was no significant difference on breath holding time

IX .REFERENCES

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