



Effects of Medicine Ball Exercises on Strength Parameters Among Women Handball Players

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ABSTRACT

The purpose of the study was to find out the effects of medicine ball exercises on strength parameters such as back and leg strength among women handball players. To achieve this purpose of the study, thirty female handball players studying in the various faculties of Annamalai University, Annamalai Nagar, Chidambaram, Tamil Nadu, India with age group of 18 to 25 years were selected as subjects at random. The selected subjects were divided into two equal groups of 15 subjects each, such as medicine ball exercises group and control group. The group I underwent medicine ball exercises for three days per week for twelve weeks. Group II acted as control who did not participate any special training programme apart from their regular physical education activities as per their curriculum. Strength Parameters such as back strength and leg strength were selected as criterion variables and were tested by using leg lift and back lift with dynamometer respectively at prior to and immediately after the training programme. The analysis of covariance was used to analyze the significant difference, if any between the groups. The .05 level of confidence was fixed to test the level of significance which was considered as an appropriate. The results of the study revealed that there was a significant improvement on selected criterion variables due to medicine ball exercises training.

KEYWORDS : Medicine ball Exercises, Plyometric Training, Strength Parameters, Back Strength, Leg Strength and Handball.

INTRODUCTION

Plyometric training can take many forms, including jump training for the lower extremities and medicine ball exercises for the upper extremities. Medicine ball Exercises and each jump training exercises were classified according to the relative demands they placed on the athlete. All the exercises are progressive in nature, with a range of low to high intensity in each type of exercise.

Warm-ups can start with passive stretching and walking and progress to skipping, light jogging, and side-to-side movements, using big arm swings to warm up the shoulders. Cool-downs should focus on low-stress activities such as light jogging, stretching, and walking. Advanced athletes may do longer workouts to perform longer drills, requires greater recovery. The actual number of jumps to be implemented in any program depends on many variables.

In other sports, such as basketball, volleyball, handball, tennis various jump drills can be integrated with skill patterns to approximate what happens on the Creating a sport-specific program requires understanding the mechanics of the sport by doing needs analysis, breaking down skill patterns into their most elementary parts. In plyometric training for handball players 80 per cent of total foot contacts should apply to activities that closely resemble the skills necessary for success in the sport;

the remaining 20 per cent can apply to general conditioning or field.

METHODOLOGY

The purpose of the study was to find out the effects of medicine ball exercises on strength parameters such as back strength and leg strength. To achieve this purpose of the study, thirty female students studying in the various faculties of Annamalai University, Annamalai Nagar, Chidambaram, Tamil Nadu, India with a age group of 18 to 25 years were selected as subjects at random. The selected subjects were divided into two equal groups of 15 subjects each, such as medicine ball exercises group and control group. The group I underwent medicine ball exercises such as suitable medicine ball exercises for women with variation and alteration for three days per week for twelve weeks. Group II acted as control who did not participate any special training programmes apart from their regular physical education activities as per their curriculum. Strength parameters such as back strength and leg strength and were selected as criterion variables and were tested by using leg lift and back lift with dynamometer respectively at prior to and immediately after the training programme. The analysis of covariance was used to analyze the significant difference, if any between the groups. The .05 level of confidence was fixed to test the level of significance which was considered as an appropriate.

ANALYSIS OF THE DATA

The influence of medicine ball exercises on each criterion variables were analyzed separately and presented below. The analysis of covariance on back strength of the pre and post test scores of medicine ball exercises group and control group have been analyzed and presented in Table-1.

TABLE - 1
ANALYSIS OF COVARIANCE OF THE DATA ON BACK STRENGTH OF PRE AND POST TESTS SCORES OF MEDICINE BALL EXERCISES GROUP AND CONTROL GROUPS

TEST	MEDICINE BALL EXERCISES GROUP	CONTROL GROUP	SOURCE OF VARIANCE	SUM OF SQUARES	df	MEAN SQUARES	OBTAINED 'F' RATIO
PRE TEST							
MEAN	82.73	82.67	BETWEEN	0.03	1	0.03	0.03
S.D	1.0	1.07	WITHIN	32.27	28	1.15	
POST TEST							
MEAN	84.07	82.93	BETWEEN	9.63	1	9.63	16.38*
S.D	0.93	0.93	WITHIN	25.87	28	0.92	
ADJUSTED POST TEST							
MEAN	84.05	82.95	BETWEEN	8.72	1	8.72	54.12*
			WITHIN	5.04	27	0.19	

*Significant at .05 level of confidence.

(The table values required for significance at .05 level of confidence for 1 and 28 and 1 and 27 are 4.20 and 4.21 respectively).

The table-1 show that the adjusted post-test means of medicine ball exercises group and control group on back strength are 84.05 and 82.95 respectively. The obtained 'F' ratio of 54.12 for adjusted post test means is greater than the table value of 4.21 for df 1 and 27 required for significance at .05 level of confidence on Back strength. The results of the study indicated that there was a significant difference between the adjusted post-test means of medicine ball exercises

group and control group on back strength.

The analysis of covariance on leg strength of the pre and post test scores of medicine ball exercises group and control group have been analyzed and presented in Table - 2.

**TABLE - 2
ANALYSIS OF COVARIANCE OF THE DATA ON LEG STRENGTH OF PRE AND POST TESTS SCORES OF MEDICINE BALL EXERCISES GROUP AND CONTROL GROUPS**

TEST	MEDICINE BALL EXERCISES GROUP	CONTROL GROUP	SOURCE OF VARIANCE	SUM OF SQUARES	df	MEAN SQUARES	OBTAINED 'F'-RATIO
PRE TEST							
MEAN	90.60	90.80	BETWEEN	0.30	1	0.03	0.09
S.D	1.82	1.60	WITHIN	91.2	28	3.26	
POST TEST							
MEAN	92.40	90.87	BETWEEN	20.84	1	20.84	13.23*
S.D	1.70	1.54	WITHIN	78.53	28	2.81	
ADJUSTED POST TEST							
MEAN	92.49	90.78	BETWEEN	3.07	1	3.07	23.47*
			WITHIN	4.80	27	0.18	

*Significant at .05 level of confidence.

(The table values required for significance at .05 level of confidence for 1 and 28 and 1 and 27 are 4.20 and 4.21 respectively).

The table - 2 shows that the adjusted post-test means of medicine ball exercises group and control group on leg strength are 92.49 and 90.78 respectively. The obtained 'F' ratio of 23.47 for adjusted post test means is greater than the table value of 4.21 for df 1 and 27 required for significance at .05 level of confidence on leg strength. The results of the study indicated that there was a significant difference between the adjusted post-test means of specific protocol group and control group on leg strength.

CONCLUSIONS

1. There was a significant difference between medicine ball exercises group and control group on back strength and leg strength.
2. There was a significant improvement on back strength and leg strength due to medicine ball exercises.

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