



EFFECT OF BULGARIAN BAG TRAINING ON SELECTED PHYSICAL VARIABLES AMONG HANDBALL PLAYERS

KEYWORDS

Bulgarian bag training, Leg explosive power, Muscular strength, flexibility.

C. Vairavasundaram

Ph.D. Research Scholar, Department of Physical Education, Bharathidasan University, Tiruchirappalli

Dr. A. Palanisamy

Associate Prof, Department of Physical Education, Bharathidasan University, Tiruchirappalli

ABSTRACT The purpose of the study was to find out the effect of bulgarian bag training on selected physical variables among handball players. To achieve the purpose of the study thirty (N=30) handball players have been randomly selected from Bharathidasan University affiliated colleges Tiruchirappalli, Tamil Nadu, India. The age of subjects were ranged from 18 to 25 years. The subjects had experience of at least three years in handball and only who has represented the intercollegiate tournament was taken as subjects. A series of physical tests was carried out on each participant. These included leg explosive power, muscular strength, and flexibility. Leg explosive power was assessed by standing broad jump, muscular strength assessed by push-ups flexibility was assessed by sit and reach. The subjects were randomly assigned into two groups of fifteen each, such as experimental and control groups. The experimental group underwent the bulgarian bag training for 3 alternative days in a week, one session per day and for 8 weeks each session lasted 60 minutes. The control group apart from daily routine activities no special training was given. The subjects of the two groups were tested on selected variables prior and immediately after the training period. The collected data were analyzed statistically through analysis of covariance (ANCOVA) to find out the significance difference, if any between the groups. The 0.05 level of confidence was fixed to test the level of significance difference, if any between groups. The results of the study showed that there was significant differences exist between Bulgarian bag training and control group. Bulgarian bag training group showed significant improvement on level of leg explosive power, muscular strength and flexibility, when compared to control group.

Introduction

The Bulgarian training bag is the ultimate extreme fitness tool for serious Olympic caliber athletes. Tactical/combat athletes and the average person wanting to take their muscle strength and endurance to the next level. With the trend toward functional training exercises that prepare your body for real-life moments the Bulgarian training bag is on the cutting edge. The Bulgarian training bag is truly functional and maximizes your strength, muscular endurance, cardiovascular fitness, mobility, and overall explosiveness. The unique shape of the bag is designed to allow for both upper and lower body training while emphasizing superior grip strength at all times.

The Bulgarian Bag strengthens and increases the muscular endurance of your grip, wrists, arms, shoulders, back, legs, rotational muscles, core musculature, co-ordination, balance, and overall shoulder and joint mobility. The Bulgarian Bag is not a sandbag. Although the Bulgarian Bag happens to be filled with sand, that alone does not make it a "sandbag." The contents of the bag are incidental to the function of the bag. Remember, it is the unique design of the Bulgarian Bag that makes it incredibly functional and versatile.

According to Bulgarian bag personal fitness expert Steve Nave, "The Bulgarian bag is a fitness tool of the next generation." Being a movement based piece of equipment, Nave states, "it incorporates all primal movement patterns that mimic natural movements. What makes the bag unique is that it's one of only a few exercise tools that cover all planes of movement under load. It's a functional training tool that creates power and neurological integration.

Methodology

To achieve the purpose of the study, thirty (N=30) male-handball players have been randomly selected from Bhar-

athidasan University, affiliated colleges Tiruchirappalli, Tamil Nadu, India. The age of subjects were ranged from 18 to 25 years. The subjects had experience of at least three years in handball and only who has represented in the district level tournament were taken as subjects. The following variables are selected as criterion variables such as leg explosive power, muscular strength, and flexibility. Leg explosive power assessed by standing broad jump, muscular strength assessed by push-ups, and flexibility assessed by sit and reach test. The subjects were randomly assigned into two groups of fifteen each, such as experimental and control groups. The experimental group participated in the Bulgarian bag training for 3 alternative days in a week, one session per day and for 8 weeks each session lasted 60 minutes. The control group maintained their daily routine activities and no special training was given. The subjects of the two groups were tested on selected variables prior and immediately after the training period. The collected data were analyzed statistically through analysis of covariance (ANCOVA) to find out the significance difference, if any between the groups. The 0.05 level of confidence was fixed to test the level of significance difference.

The criterion variables, test items and unit of measurements were presented in table.

TABLE I
CRITERION MEASURES

S.No	Criterion measure	Test items	Unit of measurement
1	Leg explosive power	Standing broad jump	In meter
2	Muscular strength	Push-ups	In number
3	Flexibility	Sit and reach	In in centimeter

TABLE – II
ANALYSIS OF SELECTED PHYSICAL VARIABLES AMONG CONTROL AND BULGARIAN BAG TRAINING GROUPS

S.No	Variables	Group	Pre-Test Mean	SD (±)	Post –Test Mean	SD (±)	Adjusted mean
1	Leg explosive power	CG	1.52	.2829	1.50	.272	1.527
		BTG	1.56	.3130	1.89	.343	1.862
2	Push-ups	CG	24.60	4.51	25.13	4.35	25.79
		BTG	26.06	4.10	31.53	3.79	30.87
3	Sit and reach	CG	25.667	3.3266	24.866	2.97	25.218
		BTG	25.933	2.4043	34.200	2.45	31.114

BTG= Bulgarian bag Training Group CG= Control group

The tables-II the pre, post-test means, standard deviations and adjusted means on selected physical variables of handball players were numerical presented. The analysis of co-variance on selected variables of Bulgarian bag Training Group and control group is presented in table – III

TABLE – III
COMPUTATION OF ANALYSIS OF CO-VARIANCE ON SELECTED PHYSICAL VARIABLES AMONG INTERCOLLEGIATE HANDBALL PLAYERS

S.No	Variables	Test	Sum of variance	Sum of squares	df	Mean square	F ratio
1	Leg explosive power	Pre-test	Between groups	0.010	1	0.010	0.11
			Within groups	2.4924	28	0.089	
		Post-test	Between groups	1.034	1	1.034	10.7*
			Within groups	2.689	28	0.096	
		Adjusted means	Between sets	0.8386	1	0.838	90.12*
			Within sets	0.2512	27	0.009	
2	Muscular strength	Pre-test	Between groups	16.133	1	16.13	0.868
			Within groups	520.5	28	18.59	
		Post-test	Between groups	307.20	1	307.2	18.40*
			Within groups	467.4	28	16.69	
		Adjusted means	Between sets	187.77	1	187.7	109*
			Within sets	46.218	27	1.71	
3	Flexility	Pre-test	Between groups	5.633	1	5.633	0.66*
			Within groups	235.86	28	8.423	
		Post-test	Between groups	326.70	1	326.70	47.77*
			Within groups	191.46	28	6.838	
		Adjusted means	Between sets	254.6	1	254.6	191*
			Within sets	35.82	27	1.326	

*Significant at 0.05 level of confidences

(Table value for df 1 and 28 was 4.19, Table value for df 1 and 27 was 4.21 respectively)

The obtained F-ratio of 90.12 for adjusted mean was greater than the table value 4.21 for the degree of freedom 1 and 27 required for significance at 0.05 level of confidence. The result of the study indicates that there was a significant difference among control and experimental groups on leg explosive power. The above table also indicates that pre test of control and experimental groups did not differ significantly and post test of control and experimental groups have significant difference on leg explosive power.

The obtained F-ratio of 109 for adjusted mean was greater than the table value 4.21 for the degree of freedom 1 and 27 required for significance at 0.05 level of confidence. The result of the study indicates that there was a significant difference among control and experimental groups on

muscular strength. The above table also indicates that pre test of control and experimental groups did not differ significantly and post test of control and experimental groups have significant difference on muscular strength.

The obtained F-ratio of 191.9 for adjusted mean was greater than the table value 4.21 for the degree of freedom 1 and 27 required for significance at 0.05 level of confidence. The result of the study indicates that there was a significant difference among control and experimental groups on flexibility. The above table also indicates that pre test of control and experimental groups did not differ significantly and post test of control and experimental groups have significant difference on flexibility.

DISCUSSION ON FINDINGS

The aim of the present study was to assess 8 week of Bulgarian bag training on handball players. The findings of the Bulgarian bag training showed a significant improvement in all the selected physical variables namely leg explosive power, muscular strength, and flexibility. The

control group handball players did not show a significant improvement in any of selected physical variables.

CONCLUSIONS

From the analysis of data, the following conclusions were drawn.

On the basis of the findings it was concluded that eight weeks of Bulgarian bag training programme produced favorable changes in leg explosive power, muscular strength, and flexibility of college handball players. Bulgarian bag training for college handball players can be safe and effective when proper safety guidelines are met and each player's program is designed appropriately and individually." Adding Bulgarian training program of regular physical activity will help to decrease the risk of chronic disease while improving quality of life and functionally, allowing people of all ages to improve and maintain their health and independent lifestyle."

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