



ISSN: 2456-0057
IJPNPE 2017; 2(2): 615-618
© 2017 IJPNPE
www.journalofsports.com
Received: 05-05-2017
Accepted: 06-06-2017

S Karunanidhi
Ph. D. Part time Scholar,
Department of Physical
Education, Bharathiar
University, Coimbatore, Tamil
Nadu, India

Dr. R Annadurai
Ph. D, Assistant Professor,
Department of Physical
Education, Bharathiar
University, Coimbatore, Tamil
Nadu, India

Impact of isolated combined medicine ball training and resistance training on arm explosive power and arm strength of intercollegiate throwers

S Karunanidhi and Dr. R Annadurai

Abstract

This study was totally (N=80) eighty throwers (shot put, discuss, javelin, Hammer throwers) were selected as samples from the qualified athletes in Bharathiar University Inter-Collegiate athletic meet were selected. They were outstanding and average throwers (Shot put, Discus throw, Javelin, Hammer throw) in the Inter-Collegiate athletic meet, Bharathiar University, Coimbatore district, Tamil Nadu, India. The selected subjects eighty (N=80) were divided into four equal groups. Each group consists of 20 subjects. The Experimental group – I was underwent to Medicine Ball Training (MBT), Experimental group – II was underwent to Resistance Training Group (RTG), Experimental group – III was underwent to Combination of Medicine Ball and Resistance Training (CMBARTG) and group – IV acted as Control Group (CG). The ages of subjects were ranged from 19 to 25 years. Whenever the 'F' ratio was found to be significant for adjusted post-test means, Scheffe's post hoc test was used to determine which of the paired mean difference was significant.

Keywords: medicine ball training, resistance training, arm explosive power, Inter-Collegiate athletic meet

Introduction

A medicine ball is a weighted ball, weighing between 1 and 10 kg. Medicine ball can range dimension which is made of brown leather, these days they are graded in special shades according to size and one made out tender plastic. The main principle with medicine ball training is that in order to throw catch it, one has to demanding many stomach muscle tissue this creates a strong or stable base to work from. In lots the equal way as the foundations are laid when constructing a house, the superior the foundations the greater the forces that can be applied. Another benefit is that in distinction to weights, which the practitioner ceaselessly have to carry upwards in opposition to gravity, remedy balls can be thrown all through gravity or in any direction relative to the carrying activity or muscle crew that are below training.

It can work in the direction of to the inertia of the ball when throwing and the momentum of the ball when catching. That's why these athletes and activity human beings that require top physique strength use medicine ball in their workout. Different recreation specific moves encompass relative proprioceptive stabilization techniques in order to keep stability power depends upon on a robust base. In truth a proper deal of the terrific coaching in sports and martial arts comes from indirect training. Medicine ball exercises are an extremely good way of coaching the core muscle to help acquire power. They can also be used to train for unique sports, the actions of a wearing motion can be replicated and incredible resistance utilized in a managed manner to instruct the muscle agencies effectively.

Resistance training (also called power training or weight training) is the use of resistance to muscular contraction to construct the strength, anaerobic endurance and size of skeletal muscles. Resistance training is primarily based on the principle that muscle tissues of the body will work to overcome a resistance pressure when they are required to do so. When you do resistance training persistently and consistently, your muscle groups become stronger. It is a form of exercise for the development of power and size of skeletal muscles. It is a common kind of resistance training, which is one form of strength training. When one does it appropriate it can provide significant functional advantages and improvement in typical health and well-being.

Correspondence
S Karunanidhi
Ph. D. Part time Scholar,
Department of Physical
Education, Bharathiar
University, Coimbatore, Tamil
Nadu, India

In one frequent training technique the instructing entails lifting regularly growing amount of weight and makes use of a variety of exercises as type of equipment to goal precise muscle group. It is specially an cardio undertaking even though some proponents have adopted it to provide the benefits of cardio exercises. Resistance training, additionally recognised as weight education or electricity training, is for everyone.

Methodology

This study, (N=80) eighty throwers (shot put, discuss, javelin, Hammer throw) were selected as samples from the qualified athletes in Bharathiar University Inter-Collegiate athletic meet were selected. They were outstanding and average throwers (Shot put, Discus throw, Javelin, Hammer throw) in the Inter-Collegiate athletic meet, Bharathiar University, Coimbatore district, Tamil Nadu, India. The selected subjects eighty (N=80) were divided into four equal groups. Each group consists of 20 subjects. The Experimental group – I was underwent to Medicine Ball Training (MBT), Experimental group – II was underwent to Resistance Training Group

(RTG), Experimental group – III was underwent to Combination of Medicine Ball and Resistance Training (CMBARTG) and group – IV acted as Control Group (CG). The ages of subjects were ranged from 19 to 25 years. The initial tests on selected criterion variables were taken and recorded for all the four groups. All the three experimental groups were trained for three days per week for a period of 12 weeks. The data collected from the four groups and statistically analyzed to determine the significant difference, if any, applying t-ratio, analysis of covariance (ANCOVA). Eighty subjects were divided at random and assigned into four groups of twenty each. No attempt was made to equate the groups in any manner. Hence, to make adjustments for difference in the initial means the analysis of covariance was used. Whenever the ‘F’ ratio was found to be significant for adjusted post-test means, Scheffe’s post hoc test was used to determine which of the paired mean difference was significant.

Results and Findings of this study

Table 1: Analysis of covariance of MBT, RTG, CMBARTG and cg on arm explosive power, (In meters)

	MBT Mean± SD	RTG Mean± SD	CMBARTG Mean± SD	CG Mean± SD	Source of variance	Sum of squares	DF	Mean square	F- value
Pre-test	4.23±0.24	4.04±0.41	4.28±0.30	4.20±0.45	BG	0.738	3	0.246	1.83
					WG	10.204	46	0.134	
Post-test	4.53±0.26	4.25±0.41	4.59±0.31	4.21±0.45	BG	2.235	3	0.745	5.46
					WG	10.373	76	0.138	
t-ratio	14.16	10.67	16.60	0.29	BG	1.246	3	0.415	63.55
Adjusted Mean	4.51	4.43	4.49	4.20	WG	0.490	75	0.007	

*significant level 0.05 level (3.22)

Table- 1 shows that the pre-test means on arm explosive power of medicine ball training (MBT), Resistance training group (RTG), combination of medicine ball and resistance training (CMBARTG) and control group (CG) are 4.23, 4.04, 4.28 and 4.20 respectively and the obtained F ratio is 1.83. Since the obtained F ratio of 1.83 for pre test means on arm explosive power is lesser than the required table value of 2.72, it is found to be insignificant at 0.05 level of confidence for 3 and 76 degrees of freedom. The post-test means on arm explosive power of medicine ball training (MBT), Resistance training group (RTG), combination of medicine ball and resistance training (CMBARTG) and control group (CG) are 4.53, 4.25, 4.59 and 4.21 respectively and the obtained F ratio

is 5.46. Since the obtained F ratio of 5.46 for post test means on arm explosive power is higher than the required table value of 2.72, it is found to be significant at 0.05 level of confidence for 3 and 76 degrees of freedom. The adjusted post-test means on arm explosive power of medicine ball training (MBT), resistance training group (RT), combination of medicine ball and resistance training (CMBARTG) and control group (CG) are 4.51, 4.43, 4.49 and 4.20 respectively and the obtained F ratio is 63.55. Since the obtained F ratio of 63.55 for adjusted post test means on arm explosive power is higher than the required table value of 2.72, it is found to be significant at 0.05 level of confidence for 3 and 75 degrees of freedom.

Table 2: Scheffe’s test for the difference between the adjusted post-test mean on arm explosive power, (In meters).

MBT	RTG	CMBARTG	CG	M.D	C.I
4.51	4.43	-	-	0.08	0.17
4.51	-	4.49	-	0.02	0.17
4.51	-	-	4.20	0.31	0.17
-	4.43	4.49	-	-0.06	0.17
-	4.43	-	4.20	0.23	0.17
-	-	4.49	4.20	0.29	0.17

* Significant at 0.05 level
(CI) Value: 0.17

Table 2. shows that the adjusted post-test mean differences on arm explosive power of medicine ball training group (MBT), resistance training group (RTG), combination of medicine ball and resistance training (CMBARTG) and control group (CG) are 0.08, 0.02, 0.31, 0.06, 0.23 and 0.29 respectively, which are lesser than the confidence interval value of 0.17 for insignificance at 0.05 level of confidence for 3 and 75 degrees

of freedom. It also shows that the adjusted post-test mean differences on arm explosive power between medicine ball training group (MBT) and control group (CG) 0.31 respectively, which are higher than the confidence interval value of 0.17 for significance at 0.05 level of confidence for 3 and 75 degrees of freedom. It may be concluded from the results of the study, that there is

statistically no significant differences between the adjusted post-test means of medicine ball training group and resistance training group, resistance training group and combination of medicine ball and resistance training group on arm explosive power. And also there is statistically significant difference

between the adjusted post-test means of medicine ball training and control group, resistance training and control group, combination of medicine ball and resistance training group and control group on arm explosive power.

Table 3: Analysis of covariance of MBT, RTG, cmbartg and cg on arm strength, (In lbs)

	MBT Mean± SD	RTG Mean± SD	CMBARTG Mean± SD	CG Mean± SD	Source of variance	Sumofsquares	DF	Mean square	F- value
Pre-test	22.89±4.31	23.09±4.35	24.23±5.04	20.44±5.57	BG	127.900	3	42.633	0.15
					WG	1787.100	46	23.154	
Post-test	24.25±4.12	25.26± 4.06	27.12±4.71	20.57±5.64	BG	407.437	3	135.812	6.20
					WG	1662.950	76	21.881	
t-ratio	5.78	14.65	17.17	0.14	BG	88.478	3	29.493	24.21
Adjusted Mean	24.00	24.87	25.59	22.67	WG	91.331	75	1.218	

*significant level 0.05 level (3.22)

Table- 3 shows that the pre-test means on arm strength of medicine ball training (MBT), Resistance training group (RTG), combination of medicine ball and resistance training (CMBARTG) and control group (CG) are 22.89, 23.09, 24.23 and 20.44 respectively and the obtained F ratio is 0.15. Since the obtained F ratio of 0.15 for pre-test means on arm strength is lesser than the required table value of 2.72, it is found to be insignificant at 0.05 level of confidence for 3 and 76 degrees of freedom. The post-test means on arm strength of medicine ball training (MBT), Resistance training group (RTG), combination of medicine ball and resistance training (CMBARTG) and control group (CG) are 24.25, 25.26, 27.12 and 20.57 respectively and the obtained F ratio is 6.20. Since the obtained F ratio of 6.20 for post-test means on arm strength is higher than the required table value of 2.72, it is found to be significant at 0.05 level of confidence for 3 and 76 degrees of freedom.

The adjusted post-test means on arm strength of medicine ball training (MBT), resistance training group (RTG), combination of medicine ball and resistance training (CMBARTG) and control group (CG) are 24.00, 24.87, 25.59 and 22.67 respectively and the obtained F ratio is 24.21. Since the obtained F ratio of 24.21 for adjusted post-test means on arm strength is higher than the required table value of 2.72, it is found to be significant at 0.05 level of confidence for 3 and 75 degrees of freedom.

ball and resistance training (CMBARTG) and control group (CG) 2.92 respectively, which are higher than the confidence interval value of 2.23 for significance at 0.05 level of confidence for 3 and 75 degrees of freedom.

It may be concluded from the results of the study, that there is statistically no significant differences between the adjusted post-test means of medicine ball training group and resistance training group, medicine ball training group and control group, resistance training group and combination of medicine ball and resistance training group on arm strength. And also there is statistically significant difference between the adjusted post-test means of combination of medicine ball and resistance training group and control group on arm strength.

Table 4: Scheffe’s test for the difference between the adjusted post-test mean on arm strength, (In lbs)

MBT	RTG	Cmbartg	CG	M.D	C.I
24.00	24.87	-	-	-0.87	2.23
24.00	-	25.59	-	-1.59	2.23
24.00	-	-	22.67	1.33	2.23
-	24.87	25.59	-	-0.72	2.23
-	24.87	-	22.67	2.2	2.23
-	-	25.59	22.67	2.92	2.23

* Significant at 0.05 level, (CI) Value: 2.23

Table-4 shows that the adjusted post-test mean differences on arm strength of medicine ball training group (MBT), resistance training group (RT), combination of medicine ball and resistance training (CMBARTG) and control group (CG) are 0.87, 1.59, 1.33, 0.72, 2.2 and 2.92 respectively, which are lesser than the confidence interval value of 2.23 for insignificance at 0.05 level of confidence for 3 and 75 degrees of freedom. It also shows that the adjusted post-test mean differences on arm strength between combination of medicine

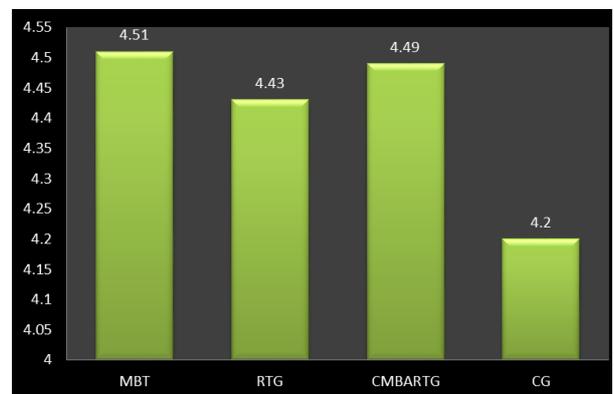


Fig 1: The adjusted post-tests mean values of mbt, rtg, cmbartg and cg group on arm explosive power, (In meters)

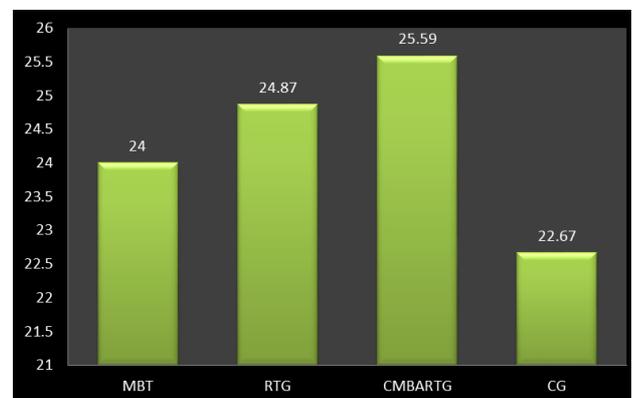


Fig 2: The adjusted post-tests mean values of mbt, rtg, cmbartg and cg group on arm strength, (In lbs)

Conclusions

1. The results of comparative effects lead to concluded that

Medicine ball training (MBT) has significant improvement on Arm explosive power of inter collegiate male throwers as compared to their performance with either Combination of Medicine Ball and Resistance Training (CMBARTG) or Resistance training (RTG) alone.

2. The results of comparative effects lead to concluded that Combination of Medicine Ball and Resistance Training (CMBARTG) has significant improvement on Arm strength of inter collegiate male throwers as compared to their performance with either Medicine ball training (MBT) or Resistance training (RTG) alone.

Reference

1. Anderson BE, Neumann ML, Huxel Bliven KC. Functional movement screen differences between male and female secondary school athletes. *J Strength Cond Res.* 2015; 29(4):1098-106. doi: 10.1519/JSC.0000000000000733.
2. Backmand H, Kaprio J, Kujala UM, Sarna S, Fogelholm M. Physical and psychological functioning of daily living in relation to physical activity. A longitudinal study among former elite male athletes and controls. *Aging Clin Exp Res.* 2006; 18(1):40-9.
3. Bellar D, Judge LW, Turk M, Judge M. Efficacy of potentiation of performance through overweight implement throws on male and female collegiate and elite weight throwers. *J Strength Cond Res.* 2012; 26(6):1469-74. doi: 10.1519/JSC.0b013e318231abb2.
4. Best RJ, Bartlett RM, Morriss CJ. A three-dimensional analysis of javelin throwing technique. *J Sports Sci.* 1993; 11(4):315-28.
5. Bouhlel E, Chelly MS, Tabka Z, Shephard R. Relationships between maximal anaerobic power of the arms and legs and javelin performance. *J Sports Med Phys Fitness.* 2007; 47(2):141-6.
6. Brumitt J, Meira EP, En Gilpin H, Brunette M. Comprehensive strength training program for a recreational senior golfer 11-months after a rotator cuff repair. *Int J Sports Phys Ther.* 2011; 6(4):343-56. PMID: 22163096 PMCID: PMC3230162.
7. Cangur S, Yaman C, Ercan I, Yaman M, Tok S. The relationship of anthropometric measurements with psychological criteria in female athletes. *Psychol Health Med.* 2016; 20:1-7.
8. Chen CK, Hamdan NF, Ooi FK, Wan Abd Hamid WZ. Combined Effects of Lignosus rhinocerotis Supplementation and Resistance Training on Isokinetic Muscular Strength and Power, Anaerobic and Aerobic Fitness Level, and Immune Parameters in Young Males. *nt J Prev Med.* 2016; 14;7:107. eCollection 2016. PMID: 27833721 PMCID: PMC5036278 DOI: 10.4103/2008-7802.190604.