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Effect of plyometric training with medicine ball exercises on selected physical fitness variables of men volleyball players

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Abstract

The impartial of this study was to explore the effects of 8 Effect of plyometric training with medicine ball exercises on selected physical fitness variables of men volleyball player total of 30 men volleyball player to participate in this study. Treatment group I underwent plyometric training with medicine ball exercises, group II acted as control group. All thirty subjects were inducted for pre and post-test on arm explosive power and muscular strength endurance. The plyometric training with medicine ball exercises was given to the experimental group for 5 days per week (Monday to Friday) for the period of eight weeks. The control group was not given any sort of training except their routine work. The arm explosive power (medicine ball throw in meter) muscular strength endurance (modified sit-ups in counts) were assessed before and after training period. The result from 't' test and inferred that 8 weeks plyometric training with medicine ball exercises treatment produced identical changes over arm explosive power and muscular strength endurance of college girls. Further, the findings confirmed the plyometric training with medicine ball exercises is suitable protocol to bring out the desirable changes over arm explosive power and muscular strength endurance of men volleyball players.

Keywords: Plyometric training with medicine ball exercises, arm explosive power, Muscular Strength Endurance and volleyball players

Introduction

Volleyball is one of the energetic sport in the world right now. To become a successful volleyball player, he needs to vanquish a lot of physical obstacles. To attain the success, they need to train more vigorously with the help of advanced training methods and equipment. Training with plyometric training with medicine ball exercises challenge the volleyball players physically and it unquestionably help the players to develop their physical fitness. A plyometric training with medicine ball exercises or gray is a traditional Russian cast-iron weight that looks like a cannonball with a handle. It was very popularity in Russia that any strongman or weight lifter was referred to as a grieve, or 'a kettle bellman'. The actual origin of the kettlebell however will always be subject to debate. Strength and conditioning workouts are beneficial for improving daily living skills in leisure exercisers. Improvements in power, strength and other performance indices are elicited by powerlifting exercises both individually and in combination, and these improvements have been shown to be directly related to training adaptations. The plyometric training with medicine ball exercises is an alternate training technique that will be researched and used to enhance performance and function. A kettlebell is a cast-iron weight with a handle that resembles a cannonball and is frequently used to improve strength, power, and general conditioning. The design of a kettle bell enables its centre of mass to go beyond the hand. Swings, raises, and presses The Scots will claim that they invented the kettlebell as part of the High and Games, and the Chinese say that the giant padlocks used by the Shaolin monks were the original kettle bells

Hypothesis

The hypothesis argued in this paper is that volleyball players can significantly changes the arm explosive power and muscular strength endurance by combining technical and tactical sessions with plyometric training with medicine ball exercises over a consecutive 8 weeks period.

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Methodology

To achieve the purpose of the study 30 men volleyball players at the age group of 20-25 years were selected from Coimbatore district. The selected subject was randomly assigned into two equal groups, consist of fifteen each, namely plyometric training with medicine ball exercises group (N=15) and Control group (N=15). The respective training was given to the experimental group the 5 days per weeks (Monday to Friday) for the training period of eight weeks. The control group was not given any sort of training except their routine. The evaluated arm explosive power medicine ball throw the unit of measurement was in meters, muscular strength endurance were measured by modified sit-ups test the unit of measurement was in counts. The parameters were measured at baseline and after 8 weeks of plyometric training with medicine ball exercises were examined. The intensity was increased once in two weeks based on the variation of the exercises.

Training programme: The training programme was lasted for 45 minutes for session in a day, 6 days in a week for a period of 8 weeks duration. These 45 minutes included warm up for 5 minutes, 35 minutes plyometric with medicine ball exercises and warm down for 5 minutes. The equivalent in plyometric training with medicine ball exercises is the length of the time each action in total 5 day per weeks. (Monday to Saturday).

Statistical analysis: The collected data on arm explosive

power and muscular strength endurance due to the effect of plyometric training with medicine ball exercises was statically analyzed with “t” test to find out the significant improvement between pre& posttest if any. In all case the criterion for spastically significance was set at 0.05level of confidence ($p < 0.05$).

Table 3: Computation of ‘t’ ratio on arm explosive power of men volleyball players on experimental group and control group (Scores in Percentage)

Group	Test	Mean	Std. Deviation	T ratio	
Arm Explosive Power	Experimental Group	Pre test	9.25	1.61	17.87*
		Post test	10.91	1.93	
	Control Group	Pre test	8.65	0.99	1.82
		Post test	8.46	0.92	

*significant level 0.05 level (degree of freedom 2.14, 1 and 14)

Table 1 reveals the computation of mean, standard deviation and ‘t’ ratio on arm explosive power of experimental and control group. The obtained ‘t’ ratio on arm explosive power max were 17.87 and 1.82 respectively. The required table value was 2.14 for the degrees of freedom 1 and 14 at the 0.05 level of significance. Since the experimental group ‘t’ values were greater than the table value of 2.14, it was found to be statistically significant. The control group ‘t’ value is less then table value of 2.14 it was found to be statistically insignificant.

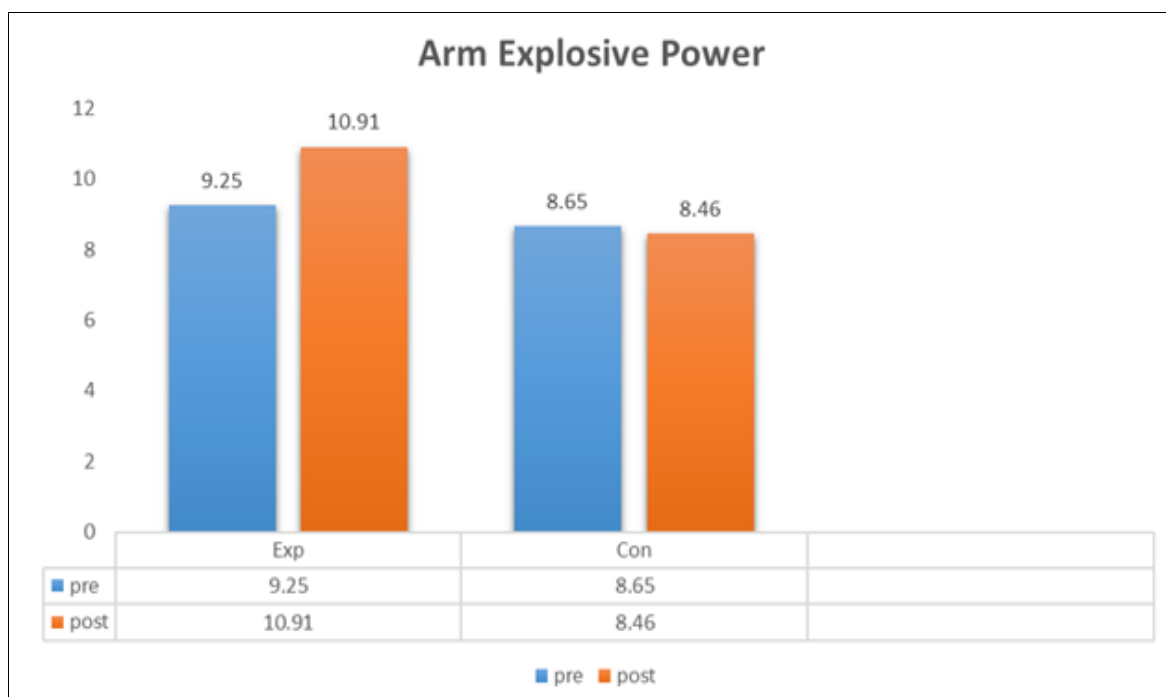


Fig 1: Bar diagram showing the mean value on arm explosive power of obese college women on experimental group and control group

Table 4: Computation of ‘t’ ratio on muscular strength endurance of obese college women on experimental group and control group (Scores in Centimeters)

Group	Test	Mean	Std. Deviation	T Ratio	
Muscular Strength Endurance	Experimental Group	Pre test	41.15	6.36	7.91*
		Post test	47.25	8.20	
	Control Group	Pre test	41.10	5.52	0.97
		Post test	40.20	4.56	

*significant level 0.05 level (degree of freedom 2.14, 1 and 14)

Table II reveals the computation of mean, standard deviation and ‘t’ ratio on muscular strength endurance of experimental and control group. The obtained ‘t’ ratio on muscular strength endurance were 7.91 and 0.97 respectively. The required table value was 2.14 for the degrees of freedom 1 and 14 at the 0.05 level of significance. Since the experimental group ‘t’ values were greater than the table value of 2.14, it was found to be statistically significant. The control group ‘t’ value is less then table value of 2.14 it was found to be statistically insignificant.

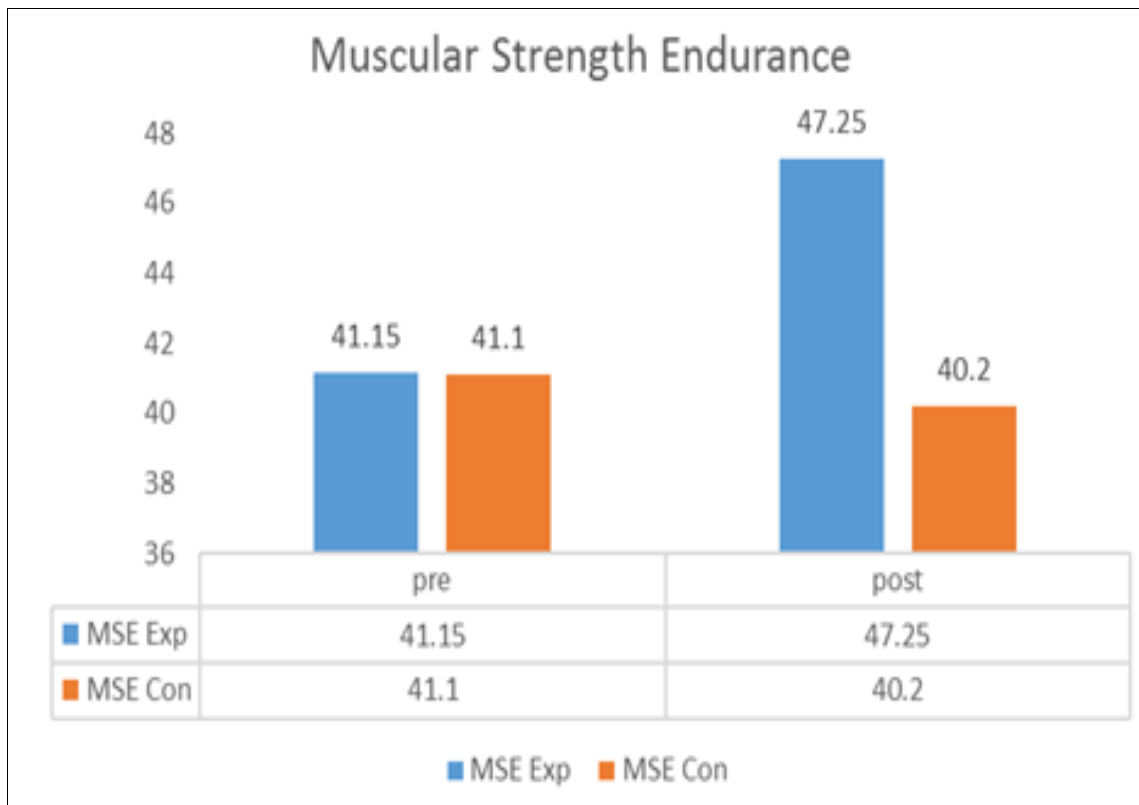


Fig 2: Bar diagram showing the mean value on muscular strength endurance of obese college girls on experimental group and control group

Discussion on findings

Persons currently are not absorbed in exercising and jogging as they think that it wastes their time and had no other benefits rather than for health. The present study experimented the influence of eight weeks plyometric training with medicine ball exercises on the selected variables are arm explosive power and muscular strength endurance of the men volleyball players. The results of this study indicated that plyometric training with medicine ball exercises is more efficient to bring out desirable changes over the arm explosive power and muscular strength endurance of the men volleyball players.

Vassil *et al.*, (2012) ^[1] Standing long jump, depth leap long jump and maximal vertical jump height test results, what has shown legs explosive power, has not shown remarkable reliable difference ($p>0.05$). Medicine ball throws and maximal vertical jumps to the maximal height in 10 seconds, what show speed force improvement, showed reliable difference ($p<0.01$).

Karthikeyan (2020) ^[4] Apart from regular volleyball practice the experimental group had undergone 40 minutes of medicine ball training 5 days in a week for 6 weeks. The criterion variables confined to this study were Arm strength, Strength endurance, Explosive power and these parameters were measured before and after the training programme.

Srinivasulu *et al.*, (2018) ^[6] studied revealed that there was a significant improvement on the selected criterion variables namely arm strength and abdominal muscular strength endurance by the application of plyometric, own body resistance and medicine ball training.

The result from this study are very encouraging and it demonstrates the benefits of kettlebell training. The volleyball players are not only using exercises to improve their mobility but also to improve the performance. Besides, the results support that improvement in mobility can occur 8 weeks of plyometric training with medicine ball exercises.

Conclusions

1. Based on the result of the study it was concluded that the 8 weeks of plyometric training with medicine ball exercises have been significantly changes in arm explosive power of men volleyball players.
2. It was concluded that the 8 weeks of plyometric training with medicine ball exercises have been significantly changes in muscular strength endurance of men volleyball players.

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