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Effect of core strength training on selected physical fitness variables of men volleyball players

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Abstract

The independent of this study was to reconnoitre the effects of 8 Effect of core strength training on selected physical fitness variables of men volleyball player total of 30 men volleyball player to participate in this study. Treatment group I underwent core strength training, group II acted as control group. All thirty subjects were inducted for pre and post-test on leg explosive power and muscular strength endurance. The core strength training 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 leg explosive power (vertical jump in centimeter) 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 core strength training treatment produced identical changes over leg explosive power and muscular strength endurance of men volleyball players. Further, the findings confirmed the core strength training is suitable protocol to bring out the desirable changes over leg explosive power and muscular strength endurance of men volleyball players.

Keywords: Core strength training, leg explosive power, muscular strength endurance and volleyball players.

Introduction

Volleyball is a sport played all over India, both in rural as well as urban India. It is a popular recreation sport. Each team tries to score points by grounding a ball on the other team's court under organized rules. It has been a part of the official program of the Summer Olympic Games since 1964. The complete rules are extensive. But simply, play proceeds as follows: A player on one of the teams begins a 'rally' by serving the ball (tossing or releasing it and then hitting it with a hand or arm), from behind the back boundary line of the court, over the net, and into the receiving team's court. The receiving team must not let the ball be grounded within their court. The team may touch the ball up to 3 times but individual players may not touch the ball twice consecutively. Typically, the first two touches are used to set up for an attack, an attempt to direct the ball back over the net in such a way that the serving team is unable to prevent it from being grounded in their court. The team that wins the rally is awarded a point, and serves the ball to start the next rally. Finally, a sport specific or running circuit also consists of timed moves that are specific to one's chosen sport. For instance, one might choose to dribble a basketball for 30 seconds. Instead of periods of rest, however, the exerciser will run in between exercises. The distance is usually fairly short, between 100 and 400 meters (109 to 437 yards) depending on speed. Circuit training workouts are an excellent way to improve overall fitness, and may be fully customized and planned for each individual's needs and preferences.

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 core strength training over a consecutive 8 weeks period.

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 core strength training 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 leg explosive power vertical jump the unit of measurement was in centimeters, 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 core strength training 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 core strength training 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 leg explosive power and muscular strength endurance due to the effect of core strength training 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 1: Computation of ‘t’ ratio on leg explosive power of men volleyball players on experimental group and control group (Scores in Percentage)

Group	Test	Mean	Std. Deviation	T Ratio	
Leg Explosive Power	Experimental Group	Pre test	46.40	6.33	14.16*
		Post test	53.00	6.60	
	Control Group	Pre test	48.00	4.70	1.82
		Post test	48.47	4.67	

*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 leg explosive power of experimental and control group. The obtained ‘t’ ratio on arm explosive power max were 14.16 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.

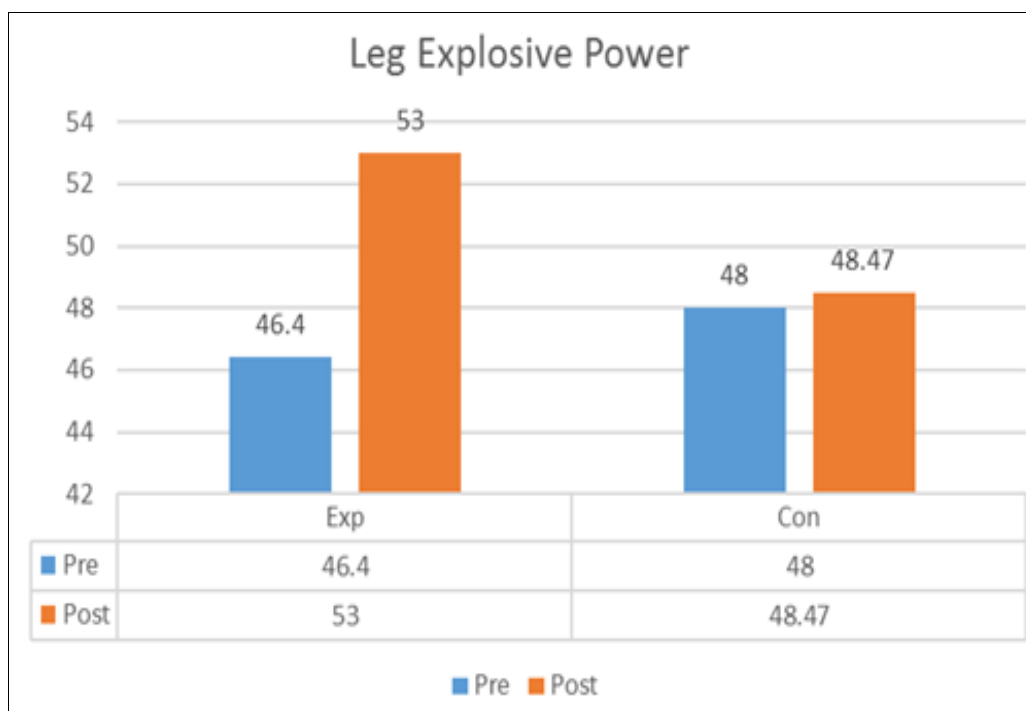


Fig 1: Bar diagram showing the mean value on leg explosive power of obese college women on experimental group and control group

Table 2: 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.

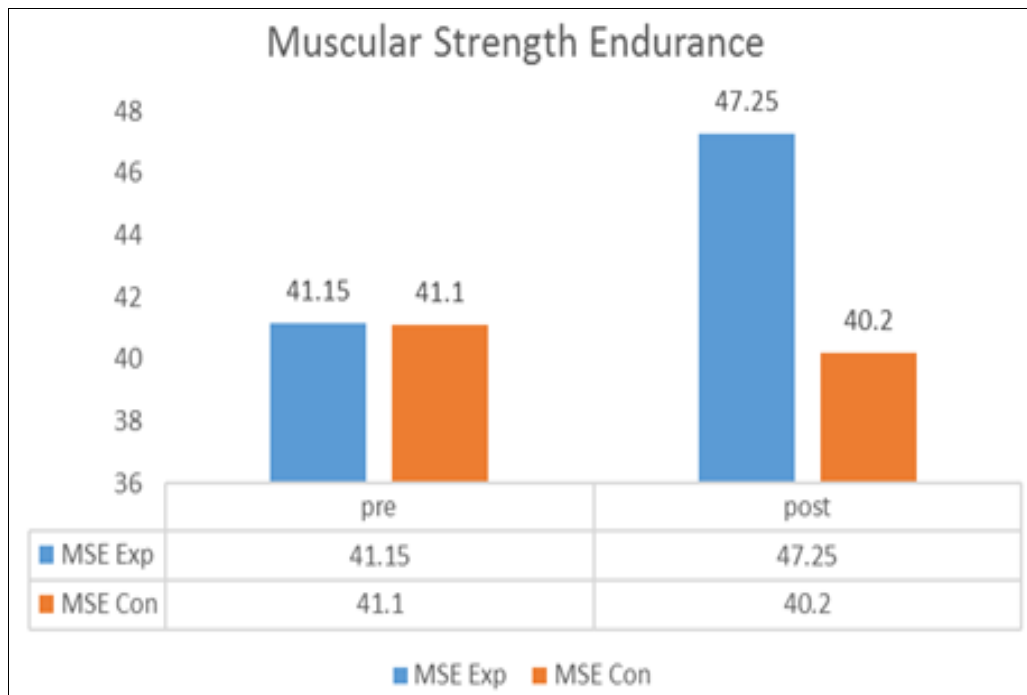


Fig 2: Bar diagram showing the mean value on muscular strength endurance of obese college girls on experimental group and control group

Discussion on findings

The present study experimented the influence of eight weeks core strength training on the selected variables are leg explosive power and muscular strength endurance of the men volleyball players. The results of this study indicated that core strength training is more efficient to bring out desirable changes over the leg explosive power and muscular strength endurance of the men volleyball players.

Deeva *et al.*, (2013) core strength training benefit improved the performance of jumping ability. Nagamani *et al.*, (2013) evaluated the effect of specific strength training on the selected physical fitness variables of speed, agility and muscular endurance are significantly improving of collegiate women athletes.

The result from this study are very encouraging and it demonstrates the benefits of core strength 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 core strength training.

Conclusion

1. Based on the result of the study it was concluded that the 8 weeks of core strength training have been significantly changes in leg explosive power of men volleyball players.
2. It was concluded that the 8 weeks of core strength training have been significantly changes in muscular strength endurance of men volleyball players.

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