



EFFECT OF CORE STRENGTH TRAINING ON SELECTED PHYSICAL VARIABLES OF HANDBALL PLAYERS

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ABSTRACT

The study was designed to investigate the effect of core strength training on selected physical variables of inter-school boy's handball players. To investigate the study, thirty inter-school boys handball players were randomly selected from NS handball academy Coimbatore and their age were ranged between 14 and 17 years. The subjects were randomly assigned to two equal groups (n=15). All the subjects were divided in to two groups with 15 subjects each as experimental and control group. Group-I underwent core strength training for a period of twelve weeks and group-II acted as control who did not participate in any special training other than the regular routine. The physical fitness variables such as shoulder strength and leg explosive power were selected as dependent variables. Pre and post-test random group design was used for this study. The dependent 't' test was applied to determine the difference between the means of two groups. To find out whether there was any significant difference between the experimental and control groups. To test the level of significant of difference between the means 0.05 level of confidence was fixed. The result of the study shows that, there was a significant changes takes place on shoulder strength and leg explosive power of inter-school boys handball players due to the effect of twelve weeks of core strength training. And also concluded that, there was a significant difference exists between experimental and control groups in shoulder strength and leg explosive power. The control group did not significant changes the selected criterion variables.

KEYWORDS: Core strength training, shoulder strength, leg explosive power.

INTRODUCTION

Core strength training mainly includes balance exercises that are performed regularly can improve core stability. Stabilize the spine is the primary function of the core muscles. The ultimate aim of core strength training is not to develop muscle hypertrophy but to promote functional capability of physical activity. This training leads to improve synchronization of participating muscles. "Importance of core muscle development can be underline in many functional and athletic activities as it enhances core stability and proximal stability to facilitate distal mobility. The appropriate timing and tension of core muscles contracting in sequence may enhance the optimal stability of both deeper and superficial core muscles" **McGill (2006)**. The core is a group of muscles that are not only essential for sports but also for our daily activities. It is important to strengthen our core because it involves in every movement of our body. It allows other musculature to produce force and also regulate the transfer of energy. It helps the practitioners to enhance the fitness level which increase their working performance. Even elderly people can also practice to maintain their fit and flexible "Core strength is essential for improvement of strength and the ability of the neuromuscular system to generate force, and stabilizes kinetic chain dynamically, the core musculature also helps to protect it from unwanted forces that are part of functional movements" **Richardson (2000)**. A strengthened core region works as a solid block that prevent chest cavity from moving while perform strenuous lifting exercises. Core training improves our posture through strengthening of torso and abdominal muscles. Strong core muscles help us to sit straight because of the lower abdominal muscles has drawn in toward the spine. The increased core stability helps us to keep our spine healthy and flexible all over the life. Core training promotes the strength, stability and mobility of our core muscles and helps our body to perform the movements more efficiently.

Core strength is an essential part of any athlete's total fitness. Handball athletes cannot ignore this facet in their physical training because handball is not a one dimensional game; players are constantly shifting their body from side to side or rotating (**Akuthota et al., 2008**) their bodies toward the ball. One strategic level of handball requires that one keeps their opponents running and off-balance, hence many directional changes during a match. Therefore, this study aimed to analyse the motor fitness parameters in male handball players after 12 weeks of the core training programme. It was expected that a scientific core muscle



training method for male handball players could be proposed. (Leetun, 2004)

METHODOLOGY

The purpose of the study was to find out the effect of core strength training on selected physical variables of inter-school boys handball players. To achieve the purpose of the study, thirty inter-school boys handball players were from NS academy, Coimbatore. The subjects were randomly assigned in to two equal groups namely, strength training group (STG) (n=15) and Control group (CG) (n=15). A pilot study was conducted to assess the initial capacity of the subjects in order to fix the load. The respective training was given to the experimental group the 3 days per weeks (alternate days) for the training period of twelve weeks. The control group was not given any sort of training except their routine.

Design

To evaluate physical fitness variable shoulder strength in push up measured in score. The parameters were measured at baseline and after twelve weeks of strength training were examined. To evaluate physical fitness variable leg explosive power in jump test measured in score. The parameters were measured at baseline and after twelve weeks of strength training were examined.

Training protocol

The training programme was conducted for 45 minutes for session in a day, 3 days in a week for a period of twelve weeks duration. These 45 minutes included 10 minutes warm up, Plyometric training for 25 minutes and 10 minutes warm down. Every three weeks of training 5% of intensity of load was increased from 65% to 80% of work load. The volume of strength prescribed based on the number of sets and repetitions. The equivalent in strength training is the length of the time each action in total 3 day per weeks (Monday, Wednesday and Friday).

Table I

Computation of 'T' Ratio on experimental group and Control group selected physical variables of inter-school boy's handball players.

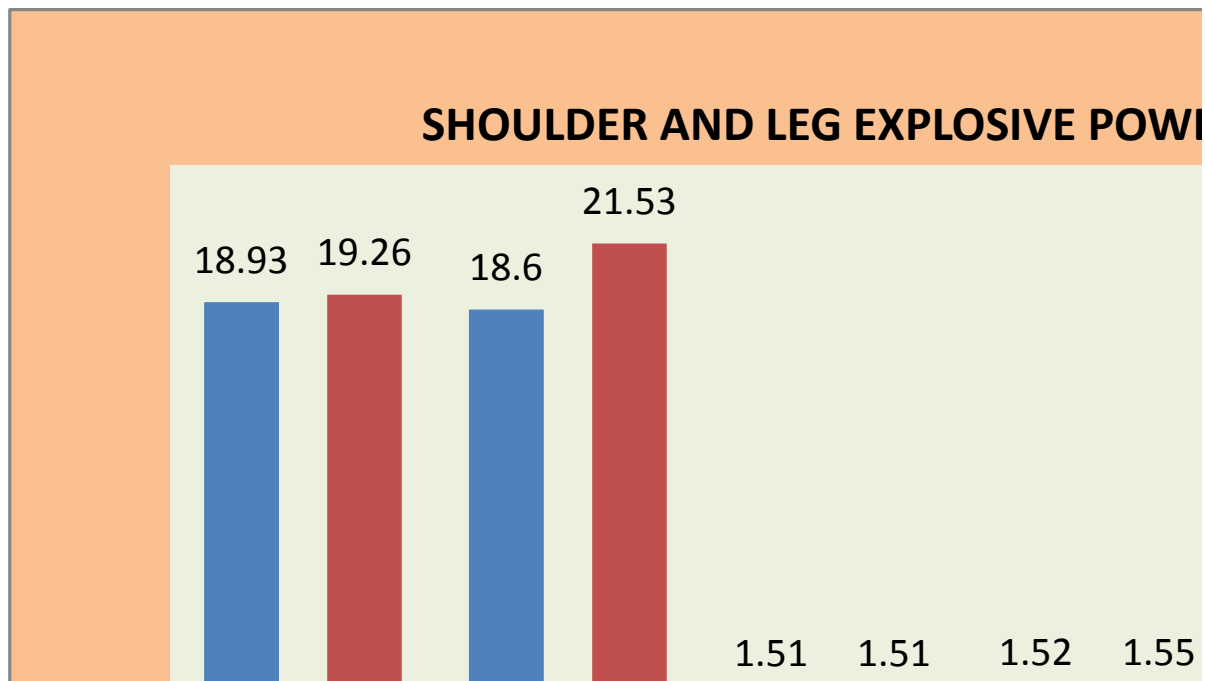
Group	Variables	Mean	N	Std. Deviation	Std. Error Mean	t ratio	
Experimental Group	Shoulder Strength	Pre	19.26	15	0.88	0.35	6.32*
		Post	21.53	15	1.30		
	Leg Explosive power	Pre	1.51	15	0.166	0.008	4.40*
		Post	1.55	15	0.164		
Control Group	Shoulder Strength	Pre	18.93	15	1.90	0.34	0.96
		Post	18.60	15	2.35		
	Leg Explosive power	Pre	1.51	15	0.04	0.09	1.37
		Post	1.52	15	0.04		

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

Table I reveals the computation of mean, standard deviation and 't' ratio on selected skill performance variables namely shoulder strength and leg explosive power of experimental group. The obtained 't' ratio on forearm drive and leg explosive power were 6.48 and 4.40 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 obtained 't' values were greater than the table value it was found to be statistically significant. further the computation of mean, standard deviation and 't' ratio on selected physical variables namely shoulder strength and leg explosive power of control group. The obtained 't' ratio on shoulder strength and leg explosive power were 0.96 and 1.37 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 obtained 't' values were lesser than the table value it was found to be statistically not significant.



The bar diagram shows the mean values of pre test on leg explosive power of control group and experimental group.



DISCUSSION ON FINDINGS

The present study was experimented the effect of core strength training on shoulder strength and leg explosive power of inter-school boys handball players. The result of this study indicated that the core strength training improved the shoulder strength and leg explosive power. The findings of the present study had similarity with the findings of investigations referred in this study. **Seied** (2012) evaluate the effect of Strength and Core Stabilization Training on Physical Fitness Factors among Elderly People. **Sekendiz et al.**, (2012) examined swiss- ball core strength training on strength, endurance, shoulder strength, and balance in sedentary women. **Subramanian al.**, (2014) reported that core strength training induced adaptations on selected physical and physiological parameters of cricket players. The result of the present study indicates that the core strength training programme is effective method to improve muscular strength and shoulder strength of inter- school boys handball players. The discrepancy between the result and the result of previous studies might be attributed to several reasons, such as the training experience level of the subjects, the training program, the intensity used and the duration of the training program. It is speculated that the observed changes in short service may properly designed sport specific which are suitable for adolescent male badminton players.

CONCLUSION

Based on the results of the study following conclusion have been arrived.

1. Eight weeks of core strength training program significantly improved the shoulder strength and leg explosive power of inter-school boys handball players.
2. The core strength training is appropriate training protocol to bring out desirable changes over fitness variables of handball players

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