



EFFECTS OF ISOMETRIC STRENGTH TRAINING ON SELECTED STRENGTH VARIABLES AMONG COLLEGE LEVEL VOLLEYBALL PLAYERS

Dr. V. Vallimurugan¹, C. Hanny Lindha²

¹Assistant Professor, Department of Physical Education, Bharathiar University, Coimbatore, Tamilnadu.

²Master of Physical Education, Department of Physical Education, Bharathiar University, Coimbatore, Tamilnadu.

ABSTRACT

This research aims to assess the Effects of Isometric Strength Training on Selected Strength Variables among College Level Volleyball Players. To achieve the purpose of the study thirty volleyball players were selected as subjects from Bharathiar University affiliated colleges, Coimbatore, Tamilnadu. The age of the subjects was ranged from 21 to 25 years. The subjects were further classified at random into two equal groups of 15 subjects, Group- I underwent isometric strength training and group-II acted Control Group (CG). Training period limited with three days in a week for six weeks of training. The selected criterion variables leg strength and core strength were assessed by wall squat and plank before and after the training period. The collected data were statistically analyzed by using dependent 't' test. From the results of the study, it was found that there was a significant enhancement on leg strength and core strength among college level men volleyball players.

KEYWORDS: *Isometric Strength Training, Volleyball, Leg Strength and Core Strength*

INTRODUCTION

Isometric strength training is a type of exercise that has been gaining popularity among volleyball players recently. Isometric exercises involve static contractions of the muscles, meaning that the muscle remains in the same position while the force is applied. These exercises are beneficial to volleyball players as they help to improve strength and stability, while also reducing the risk of injury. The primary benefits of isometric strength training for volleyball players include increased strength, improved balance, better stability and more efficient movement (Senthil Kumaran, 2023). They can be used to target specific muscles or muscle groups, or can be used as part of a full-body workout. The benefits of isometric strength training include increased muscle strength, increased muscular endurance, improved joint stability, improved posture and balance, and enhanced muscle coordination. Isometric exercises can also be used to increase the range of motion in joints and help to reduce pain associated with certain types of arthritis. Additionally, isometric strength training can help to reduce stress levels, improve heart health, and increase bone density.

Isometric exercises are typically done by pushing or pulling against an immovable object, such as a wall or a piece of furniture. When performing isometric exercises, it is important to maintain proper form and to use proper breathing techniques to ensure that the exercise is being done safely and effectively. Additionally, it is important to focus on maintaining good form throughout the entire exercise. When performing isometric exercises, it is important to start off with lighter weights and progress gradually. This will help to ensure that the muscles are not overworked and that the workout is being done safely. Additionally, it is important to focus on proper technique and posture throughout the exercise to ensure that the exercise is done correctly. Isometric strength training is a great way to improve leg and core strength in volleyball players. It involves using body weight or light resistance exercises to work the muscles without actually moving the joint or body part involved. This type of exercise has been shown to be effective in increasing strength, power, and endurance without the risk of injury associated with more traditional exercises.

For volleyball players, isometric strength training can be used to improve performance in the sport by increasing power and explosiveness. Some examples of exercises that can be used for isometric strength training for volleyball players include wall sits, squat holds, and abdominal planks. These exercises help to strengthen the muscles of the legs, core, and upper body, which are essential for powerful, explosive movements on the court. Additionally, they can be done with or without weights to help customize the workout to the individual's needs. By incorporating isometric strength training into a volleyball player's workout routine, they can improve their performance and reduce the risk of injury. It is important to keep in mind that all exercises should be done with proper form and that any exercise that causes pain should be discontinued immediately.



STATEMENT OF THE PROBLEM

The experimental study was to find out the Effects of isometric strength training on selected strength variables among college level volleyball players.

METHODS

EXPERIMENTAL DESIGN

The study was formulated as pre test and post test randomized groups design, from the players initially for the study, based on the voluntary response to participate in thirty intercollegiate men volleyball players were selected from Bharathiar university affiliated colleges further process in which thirty volleyball players were randomly selected. The age ranged from 21 to 25 years and they were divided into two groups namely isometric strength group and control group. The selected subject (N=30) was divided into two groups (n=15) which group I underwent isometric strength training and group II was consider as control group (CG). The isometric strength training group underwent the specific training in the evening session for a period of six weeks. Group II was not treated with any special training they were doing their regular activity.

TRAINING PROGRAM

The total duration of isometric strength training. The load was increased one in two strength training progress and lasted for 60 minutes. During the training period the subject were treated with isometric strength training for three alternative days (Monday Wednesday Friday) per week.

PHASE I

During the 1 to 2 weeks of training isometric strength training the subjects were treated with warm up for 10minutes. Followed by isometric strength training namely plank wall sit isometric push up hollow body hold goblet squat and bridge underwent 1 (30 sec) repetitions with 3 sets Further the session ended with warming down for 10minutes.

PHASE II

During the 3 to 4 weeks of training, isometric strength training the subjects were treated with warm up for 10minutes Followed by isometric strength training namely plank wall sit isometric push up hollow body hold goblet squat and bridge underwent 1 (35 sec) repetitions with 4 sets Further the session ended with warming down for 10minutes. Further the session ended with warming down for 10minutes

PHASE III

During the 5th to 6th weeks of training, isometric strength training the subjects were treated with warm up for 10minutes. Followed by isometric strength training namely plank, wall sit, isometric push up, hollow body hold, goblet squat and bridge underwent 1 (40 sec) repetitions with 4 sets. Further the session ended with warming down for 10minutes.

STATISTICAL ANALYSIS

The collected data were systematically processed, assemble around subject to tabulation on completion of analysis results derived from dependent ‘t’ test was used to find out the effects of isometric strength training on leg strength and core strength variables. In all cases the criterion for statistical significance was set at 005 level of confidents (P<0.05)

RESULTS

Table 1: Computation of ‘t’ ratio between pre and post-test means of Experimental group on Selected Strength variables

Experimental Group					
Strength Variables	Pre/ Post Test	Mean	S D	Std Error Mean	‘t’ Ratio
Leg Strength	Pre-Test	1.43	0.71	0.05	5.25*
	Post-Test	1.72	0.71		
Core Strength	Pre- Test	0.96	0.31	0.05	5.44*
	Post-Test	1.27	0.12		

*Significant at 0.05 level of confidence (2.145), 1 & 14.

Table 1 reveals that the Computation of ‘t’ ratio between pre and post-test means of experimental group on selected strength variables. The ‘t’ ratio on leg strength and core strength are 5.25 and 5.44 respectively. The required table value was 2.14 for the degrees of freedom 14 at 0.05 level of significance. Since the obtained ‘t’ ratio values were greater than the table value, it was found statistically significant.

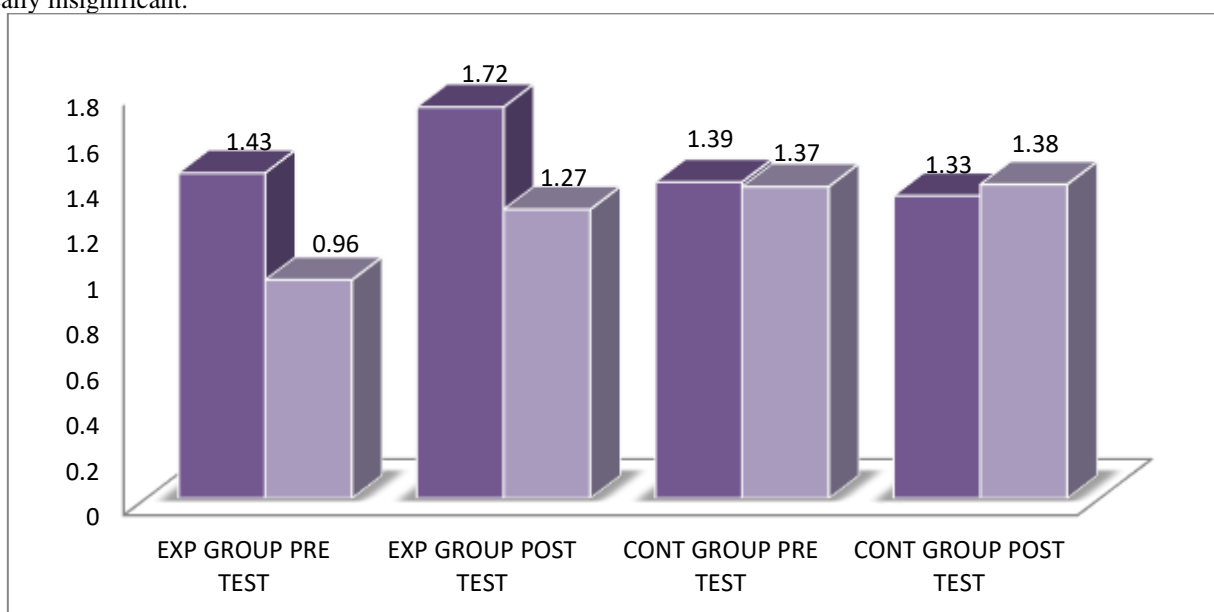


Table 2: Computation of ‘t’ ratio between pre and post-test means of Control group on Strength variables

Control Group					
Strength Variables	Pre/ Post Test	Mean	S D	Std Error Mean	‘t’ Ratio
Leg Strength	Pre-Test	1.39	0.38	0.06	0.90
	Post-Test	1.33	0.47		
Core Strength	Pre- Test	1.37	0.31	0.00	0.95
	Post-Test	1.38	0.31		

Significant at 0.05 level of confidence (2.14) 1 & 14

Table 2 reveals that the Computation of ‘t’ ratio between pre and post-test means of Control group on selected strength variables. The ‘t’ ratio on leg strength and core strength are 0.90 and 0.95 respectively. The required table valve was 2.14 for the degrees of freedoms 14 at 0.05 level of significance. Since the obtained ‘t’ ratio values were lower than the table value. It was found statistically insignificant.



DISCUSSION ON FINDINGS

The results of the study indicated that the selected strength variables such as leg strength and core strength were improved significantly after underwent the effects of isometric strength training. The changes in the selected parameters were attributed proper planning, preparation and execution of the training package given to the players.

The Isometric strength training is a fantastic training which has been to be beneficial for the volleyball players. To study the isometric strength training on selected strength variables among college level men volleyball players, it was tested under, to differentiate between isometric strength training group and control group. The isometric strength training includes on leg strength and core strength. The Isometric strength training. The obtained result proved positively the isometric strength training group significantly improved. The results of the present study indicates that the isometric strength training programme is effective method to improve leg strength and core strength of college level men volleyball players. The results of the study indicates that the control group was insignificantly improved.

CONCLUSIONS

Based on the findings and within the limitation of the study, it was noticed that practice of isometric strength training helped to improved leg strength and core strength of college level men volleyball players. It was also seen that there is progressive improvement in the selected strength variables of isometric strength training group of college level men volleyball players after six weeks. Further, it also helps to improve leg strength and core strength

1. It was concluded that individualized effects of isometric strength training group showed a statistically significant positive sign over the course of the treatment period on selected strength variables of college level men volleyball players.
2. It was concluded that individualized effects of control group showed a statistically insignificant over the course of the period on selected strength variables of college level men volleyball players.



The results of effects lead to conclude that the isometric strength training group had been better significant improvement on selected strength variables (leg strength and core strength) of college level men volleyball players as compared to their performance with control group.

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