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Effect of Plyometric Training on Selected Motor Fitness Variables among Intercollegiate Handball Players

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Abstract

The study was to find out the effect of plyometric training on selected motor fitness variables among intercollegiate handball players. For this purpose thirty students were selected from Maruthi College of physical Education, Coimbatore. The age group of the subjects ranged from 21 to 25 years and was selected by random sampling method. They were divided into 2 group's namely experimental group and control group. Each group consisting of 15 subjects. The experimental group underwent Plyometric Training for a period of six weeks and was tested before and after the training programme. Standardized tests were used to test the selected variables. The data were analyzed statistically by using dependent 't' test in order to find out the significant differences between the pre test and post test scores. After six weeks of Plyometric Training the experimental group showed significant improvement on the selected Motor fitness variables namely leg explosive power and cardio respiratory endurance.

Keywords: *Leg explosive power, Cardio respiratory endurance and Plyometric Training.*

Introduction

The training is a process of preparing an individual for any event or any activity. Usually in sports we use the term sports training which denote the scenes of preparing sports persons for the highest level of performance. Sports' training is a process of athletic improvement which is conducted on the basis of scientific principles through which systemic development of mental and physical efficiency, capacity and motivation enables athletics to produce outstanding and records braking athletics performance (**Harre 1982**)

Plyometric: Plyometric refers to exercise that enable a muscle to reach maximal strength in as short a time as possible. Such exercises usually involve some of jumping. The elements ply and metric comes from Latin roots for "Increase" and "Measure" respectively. The combination thus means "Measurable increase" Plyometric exercises are especially useful in sports that require speed-strength is the ability to extent maximal force during high speed movements. Sports that require speed-strength include track and field jumping, throwing and sprinting.

Statement of the Problem: The purpose of the present study is to find out the effect of plyometric training on selected motor.

Methodology

Selection of subjects: For this purpose thirty students were selected from Maruthi College of physical Education, Coimbatore. The age group of the subjects ranged from 21 to 25 years and were selected by random sampling method. They were dived into two groups of fifteen each. One group underwent the experimental treatment for a period of six weeks on plyometric training and one acted as control group.

Selection Of Variables

Independent variables

Plyometric training

Dependent variables

a) Motor fitness variables

1. Leg explosive power
2. Cardio respiratory endurance

Experimental Design

The study was formulated as a random group design, consisting of a pre-test and post-test. The subjects (N=30) were divided in to two equal groups of fifteen subjects each. The groups were assigned as Experimental Group and Control group (CG). Pre-test was conducted on Leg explosive power, Cardio respiratory endurance variables for two groups. The readings were carefully recorded in their respective unit as pre-test score. After pre-test experimental group was treated with Plyometric training for duration of one hour, five days per week for a period of six weeks. After six weeks of training post test was conducted and the reading were carefully recorded as post test score.

Table-1: Variables and Test Item

S. No	Variables	Test Item
01	Leg explosive power	Standing broad Jump
02	Cardio respiratory endurance	12 meter Cooper run and walk

Table-2: Training programme

Experimental Group	Plyometric training
Control Group	Regular routine
Duration	6 weeks
Session	5 days a week, 1 session per day
Duration of one session	60 minutes

Statistical Technique

The present study was treated by **paired't'ratio**. It was considered as the most appropriate statistical technique for the present study.

Results and Discussion

Table - 3: computation of paired't' ratio between the pre-test and post-test means of leg explosive power of experimental group and control group

Variable	Group	Test	Mean	S.D	D.M	σ DM	't'
Leg Explosive Power	Experimental Group	Pre Test	2.31	0.18	0.19	0.04981	3.814*
		Post Test	2.50	0.24			
	Control Group	Pre Test	2.30	0.17	0.01667	0.07983	0.209
		Post Test	2.32	0.24			

*Significant Level was fixed at 0.05 with Table value 2.14

The experimental group pre and posttest mean values are 2.31 and 2.50 and standard deviation values are 0.18 and 0.24 and paired 't ratio' value is 3.814 which is greater than table value 2.14. So it was significant. And control group mean values are 2.30 and 2.32 and standard deviation is 0.17 and 0.24. The results of paired 't ratio' value is 0.209 which is lesser than table value 2.14. So it was not significant.

The mean scores of leg explosive power of experimental group and control group were shown graphically in figure 1.

Figure - 1:Bar diagram showing the pre mean and post mean of leg explosive power of experimental group and control group

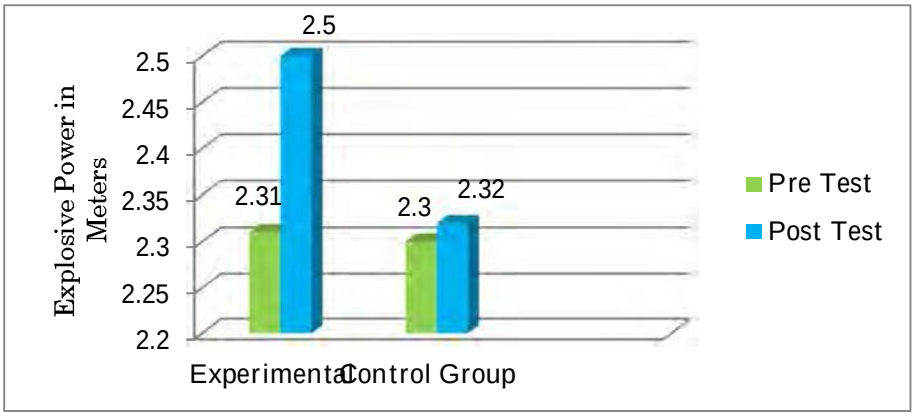


Table - 4: Computation of paired 't' ratio between the pre-test and post-test means of cardio respiratory endurance of experimental group and control group

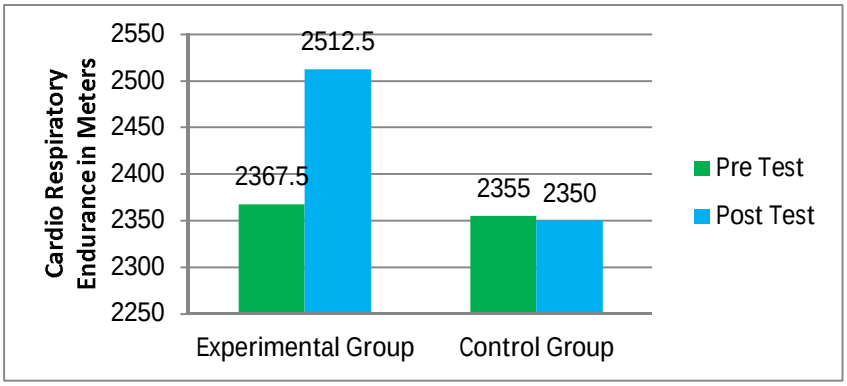
Variable	Group	Test	Mean	S.D	D.M	σ DM	't'
Cardio Respiratory Endurance	Experimental Group	Pre Test	2367.5	133.88	145	37.48	3.86*
		Post Test	2512.5	139.59			
	Control Group	Pre Test	2355	106.9	5.0	16.7	0.311
		Post Test	2350	104.17			

*Significant Level was fixed at 0.05 with Table value 2.14

The experimental group pre and posttest mean values are 2367.5 and 2512.5 and standard deviation values are 133.88 and 139.59 and paired 't ratio' value is 3.86 which is greater than table value 2.14. So it was significant. And control group mean values are 2355 and 2350 and standard deviation is 106.9 and 104.17. The results of paired 't ratio' value is 0.311 which is lesser than table value 2.14. So it was not significant.

The mean scores of cardio respiratory endurance of experimental group and control group were shown graphically in figure 2.

Figure – 2: Bar diagram showing the pre mean and post mean of cardio respiratory endurance of experimental group and control group



Conclusions

Within in the limitations of the present study, the following conclusions have been drawn.

1. It was concluded that the plyometric training group made a significant changes on selected motor fitness variables namely leg explosive power and cardio respiratory endurance from base line to post test.
2. The control group did not show any significant difference in this study.

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