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Effect of ladder training and combination of ladder training with plyometric training on selected skill performance variable of school basketball players

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Abstract

To achieve the purpose of the study, the pre and post test random group design was used as experimental design. The subjects were randomly selected from Sacred Heart Higher Secondary School, Pudukkottai. Forty five girls basketball players were selected and the subjects were divided into three groups consist of 15 subjects. Group I underwent ladder training for 3 days per weeks for six weeks. Group-II underwent combination of ladder training with plyometric training for 3 days per weeks for six weeks. Group-III acted as control that did not participate in any special training programme apart from their regular activities as per their curriculum. The data were collected for all the groups on selected criterion variable such as dribbling by using the standardized test items. The age groups of the subjects were between 14 to 17 years. Each subject was oriented in the procedure to the administration of the test. The collected data from the three groups prior to and immediately after the training programme on the selected criterion variables were statistically analyzed with Analysis of Covariance (ANCOVA). Whenever the 'F' ratio for adjusted post test means was found to be significant, Scheffe's test was followed, as a post hoc test to determine which of the paired mean differences was significant. In all the cases 0.05 level of confidence was fixed as a level of confidence to test the hypotheses.

Keywords: Ladder training, dribbling, plyometric training

Introduction

Physical Education is one of the most ancient arts of the humanities. In its broadest interpretation physical education is defined as the art and science of voluntary purposeful and active human movement. It is clear that physical education is concerned with a fundamental mode of human expression. Likewise it is an essential form of non – verbal communication which can be communicated very effectively depending and does, express a wider range of emotions while participating in a group towards the activities of physical education (John Nixon, 1980).

Ladder Training

The agility ladder is a time tested and proven effective tool for improving our footwork. The training effect is similar to jump rope, but with several advantages. First, agility ladder training is multidirectional. In most sports, we are not staying in one sport. We are moving forward, sideways and sometimes backwards, second, our feet are also allowed to move independently I more complex patterns than jump rope allows. And third, the cycle time can be result is that you can train your feet to move quickly through complex footwork patterns. The benefits to any ground based sport are huge.

Plyometric Training

Plyometric refers to exercises that allow the muscle to contract eccentrically before explosive contraction which enable the muscle to reach maximum explosive strength in a shortest period of time. The training aims at linking strength with speed to produce power. In this training the body weight of an athlete is used as resistance. All the forms of jumping exercises, wall bar exercises, pull-ups, skipping, rope climbing, sit-ups, etc. are the various forms of plyometric exercises. Since plyometric put great stress on the muscular-skeletal system, it is better to

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practice after developing the basic strength through weight training. (Dr. Chu 1996).

Basketball

Basketball is an athletic sport, usually played on an indoor court in which two competing teams of five players each attempt to score by throwing an inflated ball so that it descends through one of two baskets suspended, at each end of the court, above their heads. The team scoring the most such throws, through field goals or foul shots, wins the game. Because of its continuous action and frequent scoring, basketball is one of the most popular spectator as well as participant sports in the world.

Dribbling

Dribbling is the act of bouncing the ball continuously, and is a requirement for a player to take steps with the ball. To dribble, a player pushes the ball down towards the ground rather than patting it; this ensures greater control.

Methodology

To achieve the purpose of the study, the pre and post test random group design was used as experimental design in which 45 subjects were divided into three groups each consisting of 15 subjects. Group I underwent ladder training for 3 days per week for six weeks. Group-II underwent combination of ladder training with plyometric training for 3 days per week for six weeks. Group-III acted as control that did not participate in any special training programme apart from their regular activities as per their curriculum. The data were collected for all the groups on selected criterion variable such as dribbling by using the standardized test items.

Research Design

Random group design was adopted in this study as the investigator was particular to make the analysis of the basketball players.

Selection of Subjects

The subjects were randomly selected from Sacred Heart

Higher Secondary School, Pudukkottai. The age groups of the subjects were between 14 to 17 years. Forty five girls basketball players were selected and the subjects were divided into three groups consist of 15 subjects. Group I underwent ladder training for 3 days per week for six weeks. Group-II underwent combination of ladder training with plyometric training for 3 days per week for six weeks. Group-III acted as control that did not participate in any special training programme apart from their regular activities as per their curriculum. Each subject was oriented in the procedure to the administration of the test.

Selection of Variables

The research scholar reviewed the available scientific literature pertaining to the problem under study from websites, research papers and also taking into consideration the feasibility of criteria and availability of instruction. It is very common nature any training improves several the performance of skill performance efficiency; it was identified many years ago by sport scientists. Based on this view the physical exercises, was designed to improve the selected skill performance variables. The following variables are taken for the study.

Statistical technique

The data collected data from the three groups prior to and immediately after the training programme on the selected criterion variables were statistically analyzed with Analysis of Covariance (ANCOVA). Whenever the 'F' ratio for adjusted post test means was found to be significant, Scheffe's test was followed, as a post hoc test to determine which of the paired mean differences was significant. In all the cases 0.05 level of confidence was fixed as a level of confidence to test the hypotheses.

Dribbling

The analysis of covariance on Dribbling of Ladder training group, Combined Ladder Training and Plyometric training group and Control group have been analyzed and presented in Table 1.

Table 1: Analysis of Covariance on Dribbling of Ladder Training group, Combined Ladder Training Plyometric Training group and Control group

Test	Ladder Training Group	Combined Ladder Training and Plyometric Training Group	Control Group	Source of Variance	Sum of Squares	df	Mean Squares	F ratio
Pre Test Mean	24.87	24.33	24.36	Between	2.84	2	1.42	0.90
				Within	66.40	42	1.58	
Post Test Mean	29.53	35.40	24.47	Between	898.13	2	449.07	355.42*
				Within	53.07	42	1.26	
Adjusted Post Test Mean	29.36	35.48	24.55	Between	900.65	2	450.32	487.14*
				Within	37.90	41	0.92	

* Significant at 0.05 level of confidence.

Table value for df (2, 42) at 0.05 level = 3.22,

Table value for df (2, 41) at 0.05 level = 3.23

The above table-1 shows that the pre-test mean values on Dribbling of Ladder training group, combined Ladder training and Plyometric Training group and Control group are 24.87, 24.33 and 24.36 respectively. The obtained 'F' ratio of 0.90 for pre-test scores was lesser than the table value of 3.22 for degrees of freedom 2 and 42 required for significance at 0.05 level of confidence on Dribbling.

The post test mean values on Dribbling of Ladder training group, combined Ladder training and Plyometric Training group and Control group are 29.53, 35.40 and 24.47 respectively. The obtained 'F' ratio of 355.42 for post-test

scores was higher than the table value of 3.22 for degrees of freedom 2 and 42 required for significance at 0.05 level of confidence on Dribbling.

The adjusted post-test means on Dribbling of Ladder training group, combined Ladder training and Plyometric Training group and Control group are 29.36, 35.48 and 24.55 respectively. The obtained 'F' ratio of 487.14 for adjusted post-test scores was higher than the table value of 3.23 for degrees of freedom 2 and 42 required for significance at 0.05 level of confidence on Dribbling.

The results of the study indicate that there are significant differences among the adjusted post test means of Ladder training group, combined Ladder training and Plyometric Training group and Control group in Dribbling performance.

To determine which of the paired means have a significant difference, the Scheffe's test is applied as Post hoc test and the results are presented in Table – 2.

Table 2: Scheffe's Test for the Differences between Adjusted Post-Test Mean on Dribbling

Adjusted Post-test means				
Ladder Training Group	Combined Ladder Training and Plyometric Training Group	Control Group	Mean Difference	Confidence Interval
29.36	35.48		6.12*	0.89
29.36		24.55	4.81*	0.89
	35.48	24.55	10.93*	0.89

* Significant at 0.05 level of confidence.

Table-2 shows that the adjusted post-test mean difference in Dribbling between Ladder Training group and Combined Ladder training and Plyometric training groups, Ladder Training group and Control group, Combined Ladder training and Plyometric training group and Control Group are 6.12, 4.81 and 10.93. The values are greater than the confidence interval value 0.89, which is significant at 0.05 level of confidence.

It may be concluded from the results of the study that Combined Ladder training and Plyometric training group is

found to be a better tool to improve the Dribbling than the Ladder Training group and Control group. The pre test and post test mean values of Ladder Training group, Combined Ladder training and Plyometric training group and Control group on Dribbling are graphically represented in the Figure-1. The adjusted post test mean values of Ladder Training group, Combined Ladder training and Plyometric training group and Control group on Dribbling are graphically represented in the Figure -1.

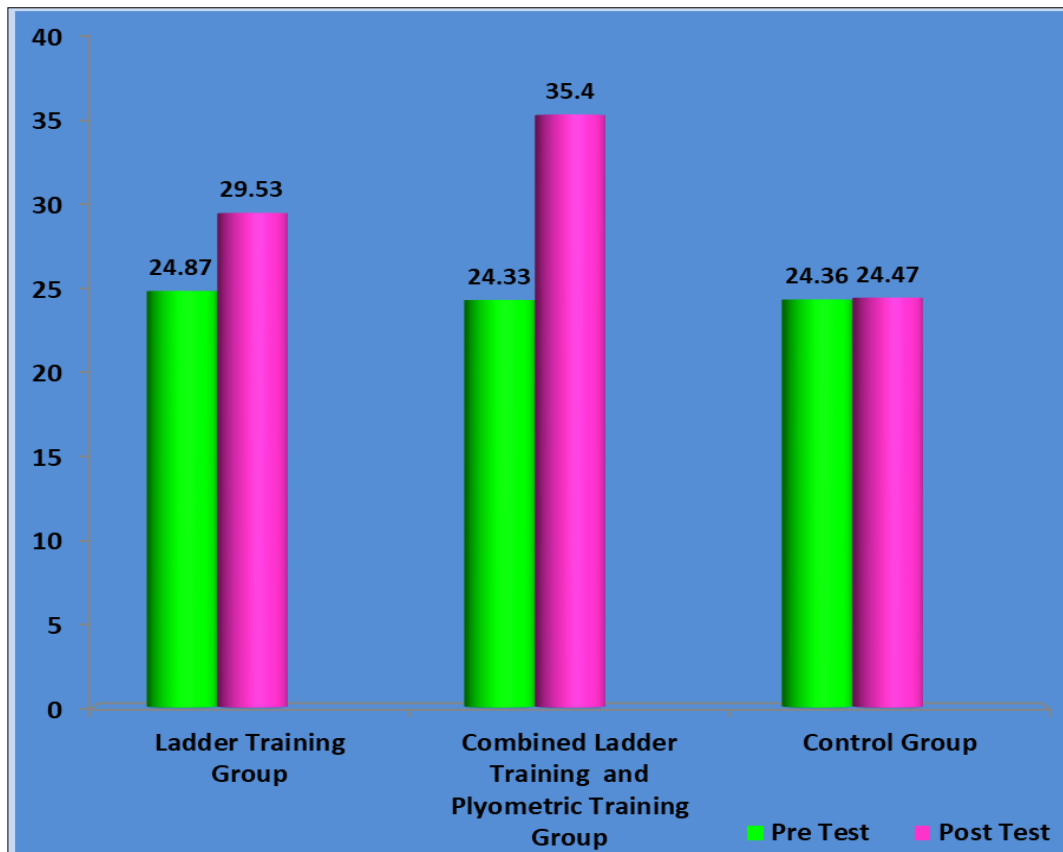


Fig 1: The pre test and post test mean values of Ladder Training group, Combined Ladder Training and Plyometric Training group and Control group on Dribbling.

Conclusions

From the analysis of the data, the following conclusions were drawn.

1. The Experimental groups namely, ladder training group and combination of ladder training with plyometric training had significantly improved in dribbling.
2. The combination of ladder training with plyometric training was found to have greater impact on the Group concerned than the ladder training group and Control group in enhancing the performance of dribbling

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