



Effect of Ladder Training and Plyometric Training on Agility Performance among men Players

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Abstract

Aim of the study was designed to determine the effect of ladder training and plyometric training on agility performance among men players. To attain the purpose, forty five (N=45) male athletes who were participated in Alagappa University inter collegiate tournaments were randomly selected as subjects. Their age ranged from 18 to 21 years. The subjects were assigned at random into three groups of fifteen each (n=15). Group-I underwent Ladder training, Group-II underwent Plyometric training and Group-III acted as Control. The dependent variable selected for this study was Agility and it was assessed by 4x10 meters shuttle run test. All the subjects were tested prior to and immediately after the training for the selected variable. The data obtained from the experimental groups before and after the experimental period were statistically analyzed with dependent 't'-test and Analysis of covariance (ANCOVA). Whenever the 'F' ratio for adjusted post test means was found to be significant, the Scheffe's Post hoc test was applied to determine the paired mean differences. The level of confidence was fixed at 0.05 level for all the cases. The results of the study showed that there was a significant difference among all the Experimental groups' namely Ladder training and Plyometric training. Further the results showed Ladder training group was found to have greater impact on the group concerned than the Plyometric training and Control group in enhancing the performance of Agility.

Keywords: Ladder training, Plyometric training, Agility

Introduction

Today's world is a competition, the rivalry to reach top and excel each other is so much. Every aspect that contributes for the excellence is carefully looked in and one of such aspects is the selection of the right person for the right event in sports and games, during which is normally a choice of selection is given to the player or the athlete. The players without knowing their inherent potential make wrong selection suiting to the individual concern and are not able to reach the top of the ladder of sports arena.

Sport has a very prominent role to play in modern society. It is important to an individual, a group, a nation and indeed the world. It has over reflected developments in society. It is an institutionalized competitive activity that involves vigorous physical exertion or the use of relatively complex physical skills by individuals whose participation is motivated by a combination of the intrinsic satisfaction associated with the activity itself and external rewards earned through participation.

Sport is intimate, profound and even spiritual. It has reached the root of human existence and, as such, provided an area for the discovery of personal truth. Neither man nor did sport alone provide the completeness by existence. Sport and man, revealed to each other the opportunity of determining meaning. In this way, once again, man located a realm of value formation. It is a source of worth and meaning.

Sports is a 'human activity that involves specific administration, organization and an historical background of rules which define the object and limit the pattern of human behavior, it involves competition or challenge and a definite outcome primarily determined by physical skill'. (Hoovanna, 2018).

Ladder drills also include speed ladder drills which are very important for any sport where agility, leg explosive strength, aerobic capacity and speed are important for games such as soccer or football and basketball. It will greatly improve the player's footwork which will improve player's quickness, agility and coordination after constantly performing different speed ladder training (Syarulniza et al., 2015).

Plyometrics is a type of training involving jumping; bounding and other high impact exercises that focus on maximizing the stretch reflex of the muscles. To teach the muscles to produce maximum force faster, this enhances performance for athletes and exercisers alike (Chu, 1998).

Plyometric exercises are specialized, training techniques used to develop strength and speed. Plyometric training involves high-intensity, explosive muscular contractions that invoke the stretch reflex; stretching the muscle before it contracts so that it contracts with greater force. The most common plyometric exercises include hops, jumps, and bounding movements.

Methodology

The study was conducted on forty five (N=45) male athletes who were participated in Alagappa University inter collegiate tournaments were randomly selected as subjects. Their age ranged from 18 to 21 years. The subjects were assigned at random into three groups of fifteen each (n=15). Group-I underwent Ladder training, Group-II underwent Plyometric training and Group-III acted as Control. The dependent variable selected for this study was Agility and it was assessed by 4x10 meters shuttle run test.. Their age ranged from 18 to 21 years. The subjects were assigned at random into three groups of fifteen each (n=15). Group-I underwent Ladder training, Group-II underwent Plyometric training and Group-III acted as Control. The dependent variable selected for this study was Agility and it was assessed by fifty meters run test. All the subjects were tested prior to and immediately after the training for the selected variable.

Analysis of the Data

The data collected from the experimental groups and control group on prior and after experimentation on selected variables were statistically examined by analysis of covariance (ANCOVA) was used to determine differences, if any among the adjusted post test means on selected criterion variables separately. Whenever they obtained f-ratio value was significant the Scheffe's test was applied as post hoc test to determine the paired mean differences, if any. In all the cases 0.05 level of significance was fixed.

The Analysis of covariance (ANCOVA) on Agility of Experimental Groups and Control group have been analyzed and presented in Table -1.

Table – 1

Computation of analysis of covariance of pre test, post test and adjusted post test on Agility of experimental groups and control group

Test	Ladder training Group-I	Plyometric training Group-II	Control Group-III	Source of Variance	Sum of Squares	df	Mean Squares	F-ratio
Pre-Test Mean	10.51	10.56	10.55	Between Groups	0.02	2	0.01	0.08
				Within groups	4.51	42	0.11	
Post-Test Mean	9.56	9.86	10.57	Between groups	8.09	2	4.04	62.53*
				Within Groups	2.72	42	0.06	
Adjusted Post-Test Mean	9.58	9.85	10.57	Between sets	7.81	2	3.91	105.19*
				Within Sets	1.52	41	0.04	

* 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

(Agility scores are in Seconds)

Table-2 shows that the pre test mean for Ladder training group, Plyometric training group and Control group on Agility is 10.51, 10.56 and 10.55 respectively, the obtained F-ratio value is 0.08, which is less than the required table value of 3.22 for significance with df 2 and 42 at 0.05 level of confidence.

The post test mean for Ladder training group, Plyometric training group and Control group on Agility is 9.56, 9.86 and 10.57 respectively, the obtained F-ratio value is 62.53, which is greater than the required table value of 3.22 for significance with df 2 and 42 at 0.05 level of confidence.

The Adjusted post test mean for Ladder training group, Plyometric training group and Control group on Agility is 9.58, 9.85 and 10.57 respectively, the obtained F-ratio value is 105.19, which is greater than the required table value of 3.23 for significance with df 2 and 41 at 0.05 level of confidence.

The results of the study indicated that there is a significant difference between the adjusted post-test means of Ladder training group, Plyometric training group and Control group on Agility.

Since, three groups are compared and whenever the obtained 'F' ratio for adjusted post test is found to be significant, Scheffe's test is used to find out the paired mean difference and it is presented in Table-2.

Table – 2

Scheffe's test for the difference between paired means on Agility

Ladder training Group-I	Plyometric training Group-II	Control Group	Mean Difference	Confident Interval Value
9.58	9.85	---	0.28*	0.18
9.58	---	10.57	0.99*	
---	9.85	10.57	0.71*	

*Significant at 0.05 level of confidence.

Table-2 shows that the mean difference values of Ladder training group and Plyometric training group, Ladder training group and Control group, Plyometric training group and Control group are 0.28, 0.99 and 0.71 respectively, which are greater than the confidence interval value of 0.18 on Agility at 0.05 level of confidence.

The results of the study showed that there was a significant difference between Ladder training group and Plyometric training group, Ladder training group and Control group, Plyometric training group and Control group.

The above data also reveal that Ladder training group had shown better performance than Plyometric training group and Control in Agility.

The adjusted post mean values of Ladder training group, Plyometric training group and Control group on Agility are graphically represented in the Figure -1.

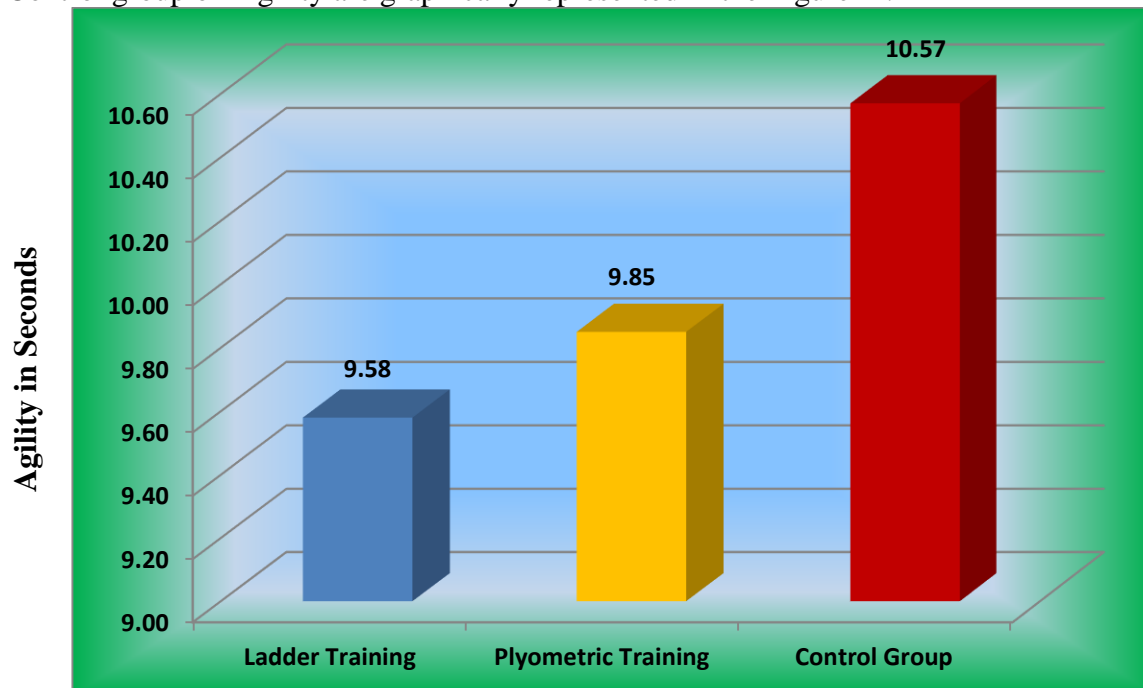


Figure: 1 The Adjusted Post Test Mean values of Ladder training group, Plyometric training group and Control group on Agility

Conclusion

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

1. Significant differences in achievement were found between Ladder training group, Plyometric training group, and Control group in the selected criterion variable on Agility.
2. The Experimental groups namely, Ladder training group, Plyometric training group, had significantly increased in Agility.
3. The Ladder training group was found to be better than the Plyometric training group and Control group in decreasing Agility performance.

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