



Effect of Plyometric Training and Resistance Training on Agility of Handball Players

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Abstract : The goal of this study's design was to examine how resistance and plyometric exercise affected the development of Agility. In total, 45 male handball players who were enrolled in a bachelor's programme in the Andhra Pradesh district of YSR Kadapa were randomly chosen for the study. Of the 45 male players, Group-I (PTG) underwent plyometric training, Group-II (RTG) underwent resistance training, and Group-III served as the Control Group (CG), which underwent both training regimens for a total of 12 weeks. All of the participants in the current study who were athletes gave their informed consent. The outcomes demonstrated that training boosted Agility.

IndexTerms - Agility, Plyometric training, resistance training, Handball.

1. INTRODUCTION

To promote and develop powerful explosive movements in a short period of time, plyometric training is an exercise technique that involves specific movements involving rapid eccentric extension of a muscle followed by an immediate rapid contraction of that muscle [1-2]. Any training regimen targeting strength and power athletes or those training primarily for health reasons should include resistance training. Obviously, endurance training is important for athletes who participate in sports such as weightlifting, bodybuilding, and running. However, many other athletes, especially those participating in sports that require high physical endurance, benefit from strength training [3-5]. Overall strength increases after exercise. The bone marrow is thought to be a major contributor to the possible underlying mechanisms, including accelerated erythropoiesis by hormones and cytokines, enhanced hematopoietic microenvironment by exercise, and hematopoietic myeloid proliferation stimulated by erythropoiesis. One of the most common medical problems associated with chronic disease is anemia. A study was conducted to determine how exercise can help prevent anemia. Research findings to date are conflicting and appear to have major methodological flaws. However, exercise may be a promising, complementary, safe, and cost-effective treatment for anemia [6].

2. Method:

For the study, 45 male handball players between the ages of 18 and 22 years pursuing a bachelor's degree from YSR Kadapa district of Andhra Pradesh were randomly selected. Of the 45 male athletes, the first group (PTG) received plyometric training, the second group (RTG) received resistance training and the third group received two different training regimens: the control group (CG). All athletes participating in this study provided informed consent. Speed, agility and endurance are the physical and blood traits selected for this study. Data on physical strength and certain physiological characteristics collected before and after the start

of the experiment for the three groups were subjected to statistical analysis (ANCOVA) to determine whether there were statistically significant differences. For interpretation purposes, pretest and posttest values of the control, resistance, and plyometric groups were compared. Because the number of patients was small, the significance level was set at 0.05. As noted in the limitation, the variables chosen can change due to many unrelated factors. We also used Scheffe's post hoc test to identify pairwise means between groups of each variable where the F ratio of the post-adjusted means was significant.

3. Result:

THE PRE-TEST, POST-TEST, AND CHANGED POST-TEST DOSSIER ON DEFTNESS OF PLYOMETRIC PREPARATION, OPPOSITION PREPARATION, AND CONTROL GROUPS ARE PROVED IN THE TABLE 1 FOR MATHEMATICAL REASONING. PRE-TEST, POST-TEST, AND REGULATED POST-TEST MEAN PRINCIPLES FOR THE PLYOMETRIC PREPARATION GROUP (PTG) ARE INDIVIDUALLY 20.09 MOMENT, 19.50 MOMENT, AND 19.79 MOMENT. PRE-TEST, POST- TEST, AND REGULATED POST-TEST MEAN PRINCIPLES FOR THE RESISTANCE TRAINING GROUP (RTG) ARE INDIVIDUALLY 20.44 MOMENT, 19.29 MOMENT, AND 19.86 BRIEF TIME PERIOD. PRE-TEST, POST-TEST, AND REGULATED POST-TEST MEAN PRINCIPLES FOR THE CONTROL GROUP (CG) ARE INDIVIDUALLY 20.55 SECONDS, 20.38 SECONDS, AND 20.47 SECONDS.

Table 1 Analysis of covariance for the pre-test, post-test, and adjusted post-TEST DATA ON AGILITY OF PLYOMETRIC TRAINING, RESISTANCE TRAINING AND CONTROL GROUPS

Analysis of covariance for the pre-test, post-test, and adjusted post-test data on agility of plyometric training, resistance training and control groups									
Test/Group		Plyometric	Resistance	Control	SOV	SS	df	MS	F Ratio
Pre-Test	\bar{X}	20.093	20.443	20.559	B	1.769	2	0.885	1.857
	σ	0.336	0.336	0.757	W	20.011	42	0.476	
Post-Test	\bar{X}	19.503	19.293	20.385	B	10.086	2	5.043	10.249*
	σ	0.336	0.336	0.804	W	20.665	42	0.492	
Adjusted Post-Test	\bar{X}	19.798	19.868	20.472	B	13.001	2	6.501	-33.936
					W	-7.854	41	-0.192	

*Significant at 0.05 level of confidence.

SD: Standard Deviation; SOV: Source of Variance; B: Between; W: Within.

(The Table value for significance at 0.05 level with df 2 and 42 is 3.220 and 2 and 41 is 3.226 respectively)

The pre-test F percentage, that was acquired, was 1.857, that is inferior the table profit of 3.220. As a result, the pre-test was important for the strengths of immunity of 2 and 42 on Agility at a 0.05 level of assurance. They got F percentage for the post-test was 10.249, that is above the 3.220 number in the table. As a result, the post-test was value for the strengths of immunity 2 and 42 on Agility at a 0.05 level of assurance. The rectified post-derivative test's F percentage of -33.93 is inferior the table advantage of 3.226. As a result, the regulated post-test was important for the grades of exemption of 2 and 41 on Agility at a level of assurance of 0.05. According to the study, skilled is a meaningful distinctness middle from two points the post-test regulated averages of the three groups—two preparation groups and a control group.

Table 2. Scheffe’s post hoc analysis for the differences between the adjusted

POST-TEST PAIRED MEANS ON AGILITY OF TWO TRAINING AND CONTROLGROUPS

Scheffe’s post hoc analysis for the differences between the adjusted post-test paired means on agility of two training and controlgroups				
Adjusted Post-Test Means			MD	Required CI
Plyometric	Resistance	Control		
19.798	19.868		0.070	0.3819*
19.798		20.472	0.675	
	19.868	20.472	0.605	

*Significant at 0.05 level

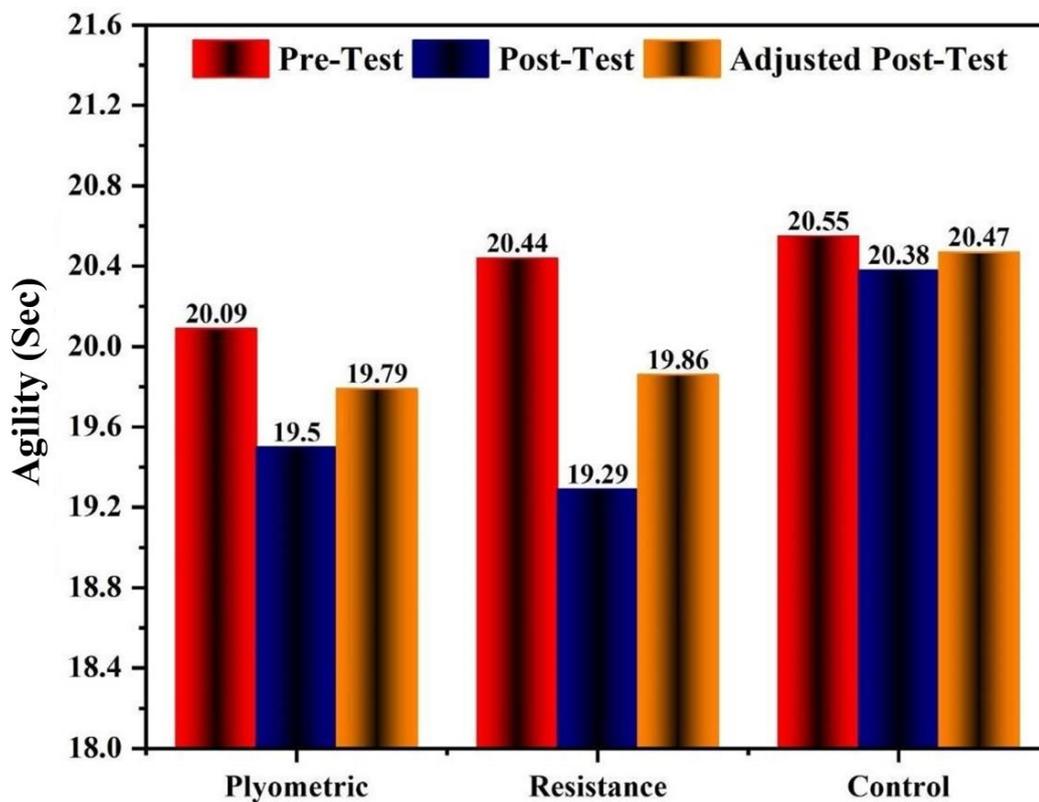


Figure 1 The pre-test, post-test, and adjusted post-test mean values of plyometric training, resistance training, and control groups on Agility.

Figure 1 shows the pre-test, post-test, and adjusted post-test mean values for the control, combined plyometric training, and resistance training groups on agility.

Scheffe's posthoc test was likewise used to determine either skilled was a meaningful dissimilarity 'tween the three mated way, and the verdicts are proved in table 2 as the regulated post-test mean dissimilarity in deftness for PTG & RTG, PTG & CG, and RTG & CG. At a 0.05 level of confidence, the mean dissimilarity between the groups is inferior the Agility assurance pause profit of 0.381. In light of this, skilled is pertinence betwixt the groups PTG & RTG, PTG & CG, and RTG & CG. There is of importance between the groups PTG and RTG cause the mean dissimilarity betwixt bureaucracy is 0.07, that is inferior the assurance break advantage of 0.381. On Agility at a 0.05 level, the mean distinctness’s between PTG & CG and RTG & CG are 0.675 and 0.605, individually, that are degree the assurance pause worth of 0.381. As a result, there is sameness between the groupings PTG & CG and RTG & CG.

4. Conclusion

When compared to other training groups and the control group, the investigation's findings showed that plyometric and resistance training significantly improved a number of selected physical variables in handball players' Agility. There is of importance between the groups PTG and RTG cause the mean dissimilarity betwixt bureaucracy is 0.07, that is inferior the assurance break advantage of 0.381. On Agility at a 0.05 level, the mean distinctness's between PTG & CG and RTG & CG are 0.675 and 0.605, individually, that are degree the assurance pause worth of 0.381. As a result, there is sameness between the groupings PTG & CG and RTG & CG.

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