



P-ISSN: 2394-1685
E-ISSN: 2394-1693
Impact Factor (ISRA): 5.38
IJPESH 2021; 8(6): 22-24
© 2021 IJPESH
www.kheljournal.com
Received: 15-09-2021
Accepted: 23-10-2021

Dr. Aranga Panbilnathan
Director of Physical Education,
Government Arts and Science
College, Vanur,
Thiruchitrabalam, Koot Road,
Tamil Nadu, India

Dr. K Palanisamy
Director of Physical Education,
Government Arts College for
Men, Nandanam, Chennai,
Tamil Nadu, India

Effect of plyometric training and plyometric combined with weight training on right hand grip strength of Kabaddi players

Dr. Aranga Panbilnathan and Dr. K Palanisamy

Abstract

The object of this study is to provide information, that would assist the design and implementation of plyometric training, plyometric training combined with weight training programme to improve performance of skill-based variables of native Kabaddi players. To achieve the purpose of the study, forty-five men native Kabaddi players were selected as subjects. The age, height and weight of the subjects ranged from 16 to 18 years, 1.63 to 1.76 meters and 50 to 65 kilograms respectively. The selected subjects were randomly assigned into three equal groups of 15 subjects each. Group I (P.T) underwent plyometric training, group II (CPW) underwent plyometric training combined with weight training and group III (CG) acted as control. The independent variable in the present study was Plyometric training (PT), Plyometric training Combined with Weight Training (CPW). The dependent variable in the present study was Right hand Grip strength. Based on the pilot study the training schedule for plyometric training and combined plyometric training with weight training with 1rm respectively. The experimental groups underwent their respective training programme 3 days for a week for twelve weeks in addition to their regular life style activities. Intensity starting from low to high at 60-foot contact to at 110-foot contact with 10 to 14 repetition and 2 to 3 sets followed from first week to twelve weeks. The data collected from the three groups prior to and post experimentation on selected dependent variable was statistically analysed to find out the significant difference if any, by applying analysis of covariance (ANCOVA). Since three groups were involved, whenever the obtained 'F' ratio for adjusted post-test means was found to be significant, the Scheffe's test was applied as post hoc test to determine the paired mean differences. In all the cases level of confidence was fixed at 0.05 for significance. The combined plyometric training with weight training is good enough to develop the skill performances Right hand Grip strength.

Keywords: Plyometric training, plyometric training combined with weight training, Kabaddi players, right hand grip strength

1. Introduction

Throughout sport science literature, combination training has typically referred to the combination of resistance and plyometric training. Studies have consistently found that while both resistance and plyometric training alone may potentially increase power output in the form of the vertical jump, the combination of the two yields the most beneficial results (Adams *et al.*, 1992; Ebben & Watts, 1998; Fatouros *et al.*, 2000; Kotzamanidis *et al.*, 2005)^[3]. A study by Tricoli *et al.*, (2005) found that combination training improved subject's countermovement performed more than those who performed just plyometrics (6.6% to 5.7%, respectively). Moreover, only the combination group improved in the squat jump (9.5%). Another study found that those who performed combination training improved their counter movement, sqt jump and 30 meter dash times significantly better than groups that trained for strength alone (Kotzamanidis *et al.*, 2005). As plyometrics are considered the bridge to explosive movements, its combination with resistance training enhances power production (Tricoli *et al.*, 2005). Researchers agree that improvements are due to improved neuromuscular adaptations and coordination (Cronin, *et al.*, 2002; Bobbert *et al.*, 1996). By enhancing contractile and stretch reflex properties, combination training is believed to enhance both muscular strength and the velocity of movement on the specific task simultaneously (Kotzamanidis *et al.*, 2005; Baker, 1996). (Fleck & Kraemer, 2004). Studies have in fact performed the exercises on the same day with several hours between plyometrics and 14 resistance (Fatouros *et al.*, 2000).

Corresponding Author:
Dr. Aranga Panbilnathan
Director of Physical Education,
Government Arts and Science
College, Vanur,
Thiruchitrabalam, Koot Road,
Tamil Nadu, India

This is usually considered advantageous however as it makes it difficult to ensure adequate recovery and energy restoration of the muscle (Baechle & Earle, 2000) [1]. Another design of combine training involves combining upper body resistance with lower body plyometrics and vice versa (Baechle & Earle, 2000) [1]. With this program, upper and lower body regions take turns alternating between high and low intensities.

Sports performance is that the results and expression of the entire temperament of the sport should possess sure psychological feature, voluntary and sensory activities, sure temperament traits, habits and particularly positive belief, values, perspective and interest of coaching and competition. Therefore, sport coaching additionally aims at higher education of the sport. The academic aspects of sports coaching are sadly typically unnoticed by the coaches and education academics in Republic of India. Performance development is stressed additional at the price of education of sport. The education fact of sports coaching comes into sharp focus. After we contemplate that in performance sports, the orderly coaching in the majority the sports have got to begin from childhood. Therefore, it becomes all the additional vital to teach the kid and youth together with up their performance in the course of sports coaching. Coaching involves intermittent measurement of the player's standing and progress. Coaching typically varies from of gradual increase within the problem to task performance. Coaching suggests some style of gradual increase in performance output over an extended amount of your time.

2. Methodology

2.1 Statistical technique

The collected data were statistically analyzed for significant

difference if any, by applying Analysis of Covariance (ANCOVA) among the groups. Since, three groups were compared, whenever, the obtained 'F' ratio for adjusted posttest was found to be significant, the Scheffe's test was applied to find out the significant paired mean differences, if any. The level of significance was set at 0.05 level of confidence, which was considered as an appropriate.

2.2 Selections of subjects

Forty-five men native Kabaddi players were selected as subjects. The age, height and weight of the subjects ranged from 18 to 21 years, 1.63 to 1.76 meters and 50 to 65 kilograms respectively. The selected subjects were randomly assigned into three equal groups of 15 subjects each. Group I (P.T) underwent plyometric training, group II (CPW) underwent plyometric training combined with weight training and group III (CG) acted as control.

2.3 Selection of variable

In the present study, the investigator selected the skill based performance variable namely Right hand Grip strength. The selected criterion variable was measured by Hand dynamometer in Kg.

3. Results and Discussion

3.1 Analysis of training effect on right hand grip strength

The mean and standard deviation values on Right hand grip strength of control group, Plyometric training group, and Combined Plyometric weight training group during twelve weeks of training and testing periods have been presented in table-I.

Table I: ANCOVA results on right hand grip strength of the three groups

	Control Group	P.T. Training Group	CPW Training Group	SoV	SS	df	MS	'F'
Pretest Mean	39.61	39.68	39.39	B	0.69	2	0.35	0.60
SD	0.64	0.89	0.71	W	24.16	42	0.57	
Posttest Mean	39.40	45.72	45.81	B	404.56	2	202.80	299.45*
SD	0.71	0.67	1.02	W	26.37	42	0.67	
Adjusted Posttest Mean	39.40	45.72	45.80	B	404.58	2	134.86	195.04*
				W	28.34	41	0.69	

*Significant of 0.05 level of confidence

The required table value for significance at 0.05 level of confidence with degrees of freedom 2 and 41 is 3.22 and degree of freedom 2 and 42 is 3.22.

Table-I shows that the pretest means on Right hand grip strength of control group, P.T.G and CPW group are 39.61, 39.68 and 39.39 respectively. The obtained 'F' ratio value of 0.60 for pretest mean is lesser than the required table value of 3.22 for significance at 0.05 level. It reveals that there is statistically insignificant difference among control and P.T.G and CPW group on Right hand Grip strength before the commencement of plyometric training and combined weight training. It inferred that the random assignment of subjects for the three groups is successful.

The posttest mean on Right hand Grip strength of control group, P.T.G and CPW training group are 39.40, 45.72 and 45.81 respectively. The obtained 'F' ratio value of 299.45 for post-test data is greater than the required table value of 3.22 for significance at 0.05 level.

The adjusted posttest mean on Right hand Grip strength of control group, P.T.G and CPW, are 39.40, 45.72 and 45.80 respectively. The obtained 'F' ratio value of 195.05 for adjusted post-test data is greater than the required table value of 3.22 for significance at 0.05 level. It reveals that there is

significant difference among the groups on Right hand Grip strength as a result of Plyometric training and combined weight training group.

Since, the obtained 'F' ratio for adjusted means is significant, the Scheffe's post-hoc test was applied to find out the significant paired mean difference and it is presented in table II.

Table II: Scheffe's post-hoc test to find paired mean difference

Adjusted Post Test Means			DM	CI
Plyometric Training	Combined Plyometric with weight Training	Control Group		
45.72	45.80		0.08*	1.22
45.72		39.40	6.32*	1.22
	45.80	39.40	6.40*	1.22

The confidence interval required for 0.05

Table-II shows that the mean differences on Right hand Grip strength between control group and CPW group is 6.32; between P.T.G and CPW group is 0.08; P.T.G and CPW group is 6.40 are significant, since the obtained mean difference are higher than the confidence interval value of 0.05 level of significance.

It reveals that both experimental groups have significantly increased the Right-hand Grip strength as compared to control group. Further, the improvement of Right hand Grip strength

is significantly higher for P.T. and CPW compared to control group but CPW group was a touch better than P.T.

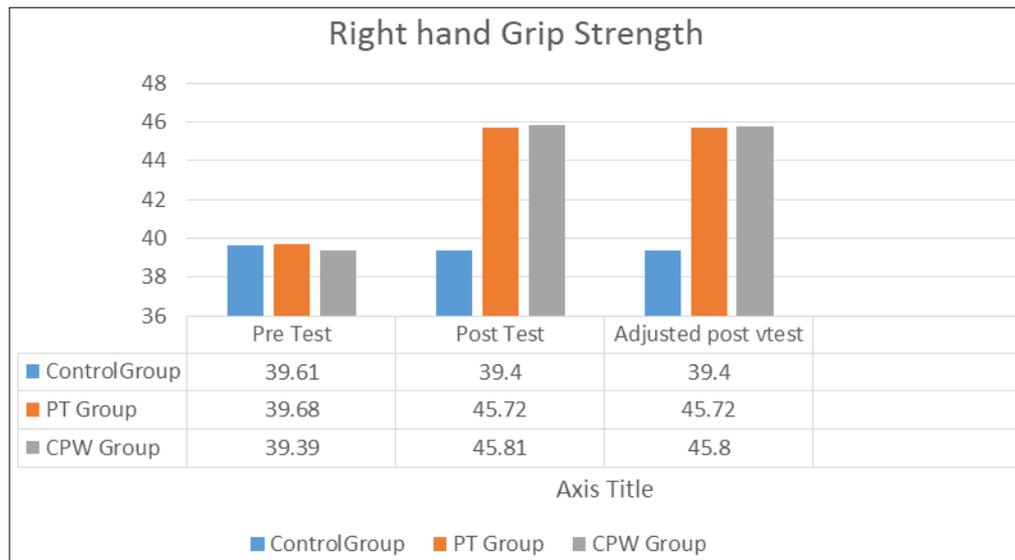


Fig 1: Graphical Representation of Pretest, Posttest, Control, Plyometric group and Combined Plyometric with weight Training Groups on Right hand Grip strength

4. Conclusion

The major finding of this study was both plyometric training and plyometric combined with weight training regiments contributed to the enhancement of selected dependent variable. But the plyometric training combined with weight training was better than the plyometric training.

The plyometric training combined with weight training was good enough to develop the Right hand Grip strength better than plyometric training in the game Kabaddi.

5. References

1. Baechle T, Earle R. Essentials of Strength Training and Conditioning (2nd Edition), Champaign, Human Kinetics 2000.
2. Bhavani Madavi. Effect of plyometrics on strength of ankle musculature and agility in female Kho-Kho players. International journal of pharmaceutical research and bio-science 2016;5(5):23-32.
3. Ebben WP, Watts PB. A review of combined weight training and plyometric training modes: complex training. Strength and Conditioning 1998;10:18-25.
4. Felipe Franco-Márquez, David Rodríguez Rosell, José Manuel González-Suárez, Juan José González Badillo. Effects of Combined Resistance Training and Plyometrics on Physical Performance in Young Soccer Players. International Journal of Sports Medicine 2015;36(11):92-102.
5. Guruvupandian C, Murugavel K. Influence of high intensity plyometric training program on motor fitness variables of intercollegiate male handball players. International Journal of Applied Research 2017;3(6):536-539.
6. Ingle L, Sleep M, Tolfrey K. The effect of a complex training and detraining programme on selected strength and power variables in early pubertal boys: Journal of sports sciences 2006;24:987-997.
7. Khadijeh Irandoust, Morteza Taheri. Effects of 8-Week Plyometric and Strengths Aiming Programs on Selected Physical Fitness Factors of Elite Kabaddi Players Indian Journal of Fundamental and Applied Life Science

2014;44(S4):3942-3948.

8. McDonald CJ, Lamont HS, Garner JC. A Comparison of the Effects of 6 Weeks of Traditional Resistance Training, Plyometric Training and Complex Training on Measures of Strength and Anthropometrics. Journal of Strength and Conditioning Research 2012;26(2):422-31.