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Isolated Combined Elastic Band Base Plyometric Exercises and Compound Weight Training Impact on Leg Elastic Power of Football Players

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ABSTRACT

The study was to examine the isolated, combined elastic band base plyometric exercises and compound weight training on leg explosive power in term of bunny hops of male football players. Total N=48 male college level football players age ranging from 19-23 years selected from various colleges of Khammam district of Telangana. The chosen football players was randomly recruited into four groups each group n=12 football players i.e. empirical groups I football players underwent: elastic band base plyometric exercises [EBBPE], empirical group II football players underwent: compound weight training [CWTG], empirical group III underwent: combined elastic band base plyometric exercises and compound weight training [EBPCWT], and control football players group [CFP]. CFP was practiced only football. The training period was for 12- week's duration. The measurement was done by conducting bunny hops test in meters before and after the completion of training. The collected score's were analyzed by ANCOVA and level of significant was restricted at 0.05 levels. The study found that isolated, combined elastic band base plyometric exercises and compound weight training had positive significant impact to increasing the leg elastic power in term of bunny hops test performances of empirical group's football players comparative to control group. No significant difference found between isolated compound weight training and combined elastic band base plyometric exercises and compound weight training.

Keywords: – weight, plyometric, compound, elastic, band, power and football

Introduction:

The term physical education encompasses all those activities such as informal play, movement education, competitive sports, rhythmic activities, recreational games, camping, fitness exercises, curative exercises, health orientation activities, and exercises for mass demonstration, etc which helps to develop physical mental, social, spiritual and emotional of the participants.

A compound exercise focuses on a variety of muscle groups being used through one movement. Due to the extra muscles used within the movement athletes show the most strength on compound movements. Some research study suggests that the brief rise in anabolic hormone release and release of testosterone, after doing compound exercises with heavy weights that boosts muscles protein synthesis. Najmeh et al., (2019) mentioned that compound circular exercises have significant improvement impact on hematological parameters and immune system in non athletes.

Statement of the Research Problem:

To analyze the "isolated combined elastic band base plyometric exercises and compound weight training impact on elastic power in term of bunny hops performance of football players".

Research Hypothesis:

- There will be a significant increase in elastic power in term of bunny hops performance of empirical group's football players after the twelve weeks impact of isolated, combined elastic band base plyometric exercises and compound weight training when compared with control group football players.

- The combined elastic band base plyometric exercises and compound weight training will be superior to the isolated training.

Methodology:

The study was to measure the isolated, combined elastic band base plyometric exercises and compound weight training on elastic power in term of bunny hops performance of male football players. Total N=48 male college level football players age ranging from 19-23 years selected from various colleges of Khammam district of Telangana. The chosen football players was randomly recruited into four groups each group n=12 football players i.e. empirical groups I football players underwent: elastic band base plyometric exercises [EBBPE], empirical group II football players underwent: compound weight training [CWTG], empirical group III underwent: combined elastic band base plyometric exercises and compound weight training [EBPCWT], and control football players group [CFP]. CFP was practiced only football. The training period was for 12- week's duration. The measurement was done by conducting bunny hops test before and after the completion of training. The collected score's were analyzed by ANCOVA and level of significant was restricted at 0.05 levels.

Table - I
Analysis of Covariance for Elastic Power in Term of Bunny Hops Performance on Pre Test and Post Test Data of EBBPE, CWTG, EBPCWT and CFP Groups Football Players (In Meters)

GROUPS	EBBPE	CWTG	EBPCWT	CFP	SOURCE OF VARIANCE	SUM OF SQUARES	df	MEAN SQUARES	OBTAINED 'F'
re Test Mean	11.34	11.24	11.37	11.49	Between	0.36	3	0.12	0.67
D	0.47	0.42	0.39	0.40	Within	8.04	44	0.18	
ost Test Mean	12.45	11.91	13.54	10.86	Between	44.90	3	14.96	124.16*
D	0.27	0.29	0.25	0.50	Within	5.30	44	0.12	
djusted Post est Mean	12.45	11.93	13.54	10.84	Between	45.06	3	15.02	125.74*
					Within	5.13	43	0.11	
lean Diff	+1.11	+0.67	+2.17	-0.63	-	-	-	-	-

Table F-ratio value at 0.05 level of confidence for 3 and 44 (df) =2.82, 3 and 43 (df) =2.82

*Significant

The above table-I shows that there is a significant difference on strength endurance performance among the four groups such elastic band base plyometric exercises [EBBPE], compound weight training [CWTG], combined elastic band base plyometric exercises and compound weight training [EBPCWT], and control football players group [CFP]. Since the 'F' value required being significant at 0.05 level for 3, 44 d/f and 3, 43 are 2.82, but the computation values of strength

endurance in term of bent knee sit ups test performance post and adjusted posttest 'F' values are 124.16 and 125.74 respectively. Which are greater than the tabulated value. Since the obtained 'F' ratio is found significant.

Table – II

Scheffe's Confidence Interval Test for Paired Adjusted Final Mean Differences EBBPE, CWTG, EBPCWT and CFP Groups Football Players on Elastic Power in Term of Bunny Hops Performance

EBBPE	CWTG	EBPCWT	CFP	MD	CI
12.45	11.93	-	-	0.52*	0.39
12.45	-	13.54	-	1.09*	
12.45	-	-	10.84	1.64*	
-	11.93	13.54	-	1.61*	
-	11.93	-	10.84	1.09*	
-	-	13.54	10.84	2.70*	

*Significant

EBBPE : Elastic band base plyometirc exercises football players group
CWTG : Compound weight training football players group
EBPCWT : Combined elastic band base plyometric exercises and compound weight training football players group
CFP : Control football players group.

On the bases of Scheffe's method test result on elastic power of football player the best method impact of isolated and combined elastic band base plyometric exercises and compound weight training for gaining elastic power in term of vertical distance was chosen.

The table shows that mean differences [MD] values of elastic band base plyometirc exercises football players group [EBBPE] and control football players group, compound weight training football players group [CWTG] and control football players group [CFP] and, combined elastic band base plyometric exercises and compound weight training football players group [EBPCWT] and control football players group [CFP] were 1.64, 1.09 and 2.70 respectively, these values are high than CI value of 0.39. The result found that all the three training were effective isolated and combined elastic band base plyometric exercises and compound weight training to increase the elastic power of football players when comparison done with control football players group.

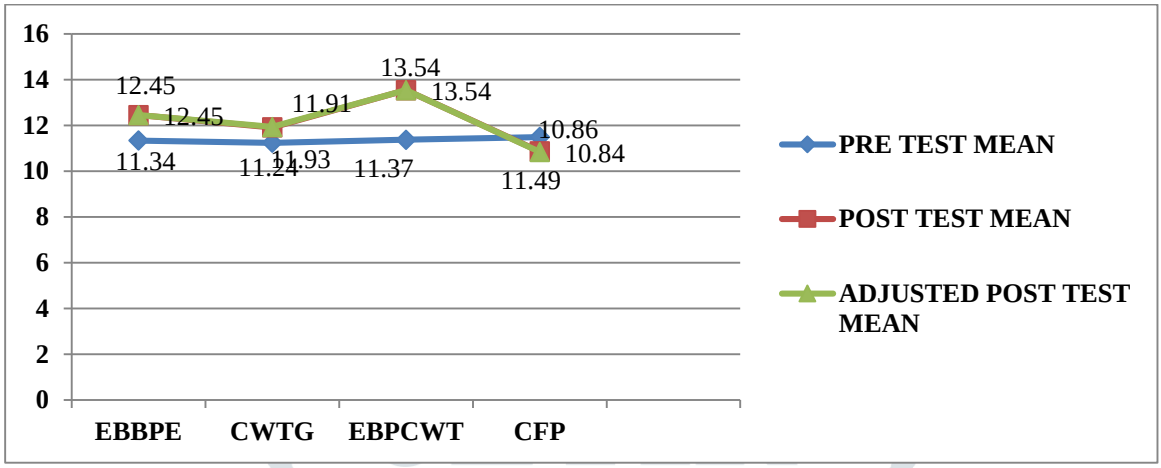
The mean differences [MD] values comparison between elastic band plyometric exercises [EBBPE] and combined elastic band base plyometric exercises and compound weight training football players group [EBPCWT] and, compound weight training [CWTG] and combined elastic band base plyometric exercises and compound weight training football players group [EBPCWT] were 1.09 and 1.61, these values are high than CI value of 0.39. On the bases of result, study approved that combined elastic band base plyometric exercises and compound weight training were more effective than isolated elastic band base plyometric exercises and compound weight training to increase the elastic power of football players.

The mean differences values [MD] comparison between elastic band plyometric exercises [EBBPE] and compound weight training football players group [CWTG] is 0.52, this value is higher than CI value of 0.39. On bases of result, the study confirmed that elastic band plyometric exercises are more effective than compound weight training to increase the elastic power of football players.

The initial, final and adjusted final mean values of elastic power for the four group's football players namely EBBPE, CWTG, EBPCWT and CFP present in line graph for clear understanding purpose in figure: 1.

Figure - 1

THE ELASTIC POWER [IN METERS] PRE POST AND ADJUSTED POST TEST MEAN OF EBBPE, CWTG, EBPCWT AND CFP GROUPS OF FOOTBALL PLAYERS PRESENTED IN LINE GRAPH.



EBBPE : Elastic band base plyometirc exercises football players group
CWTG : Compound weight training football players group
EBPCWT : Combined elastic band base plyometric exercises and compound weight training football players group
CFP : Control football players group.

Discussion on Hypothesis:

- The first hypotheses stated that there will be significant increase in leg elastic power performance in term of bunny hops of empirical group's football players after the twelve weeks impact of isolated, combined elastic band base plyometric exercises and compound weight training when compared with control group football players. The statistical analysis proved that isolated, combined elastic band base plyometric exercises and compound weight training significantly increased the elastic power performance in term of Bunny hops test. Hence research hypothesis accepted.
- The second hypotheses stated that combined elastic band base plyometric exercises and compound weight training will be superior to the isolated training. The statistical analysis proved that combined elastic band base plyometric exercises and compound weight training is superior to isolated training method. Hence research hypotheses accepted.

Discussion and Findings:

The study presented, on the bases of analysis table I and II that isolated and combined twelve weeks training impact of elastic band base plyometric exercises and compound weight training positively increase the elastic power in of football players increased in bunny hop test. The published articles results on elastic power were Swaminathan (2008) found that maximal power and plyometric trainings had significant positive gain improvement impact on elastic power. Muthu (2002) report proved that 8-weeks impact of strength training and combined training of strength and strength endurance positively increased the elastic strength. Ghaith et al., (2021) confirmed that adding biweekly elastic band plyometric training significantly improves elastic muscle power. Shafeeq et al., (2013) proved that three trainings method such as resistance exercises, plyometric exercises and combined resistance and plyometric training produced significant improvement on elastic strength. Boominathan (2010) found satisfied significant improvement on elastic power with the impact of progressive resistance training and progressive resistance training with tapering. Rohit et al., (2021) study concluded that longer duration of complex training seems to be optimal improving the jumping abilities of soccer players.

Conclusions:

On the bases of analysis report, the study shows that isolated and combined elastic band base plyometirc exercises and compound weight training had positive impact on trained groups football players namely: EBBPE, CWTG and EBPCWT to

increase the elastic power in bunny hop test when comparison done with control football players group. The study concluded that, that combined elastic band base plyometric exercises and compound weight training were more effective than isolated elastic band base plyometric exercises and compound weight training to increase the elastic power of football players. Further the study confirmed that an elastic band plyometric exercise is more effective than compound weight training to increase the elastic power of football players.

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