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The effect of plyometric training and plyometric weight training with and without protein supplementary on triglycerides (TGL) on kabaddi players

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Abstract
The purpose of the study is to find out the effects of plyometric training and plyometric weight training with and without protein supplementation on Triglycerides (TGL) Sixty (N=60) College Annamalai University, India were randomly selected as subjects. Subjects selected were randomly assigned into four groups of fifteen each (n=15). Group-I underwent plyometric Training with supplementation of protein, Group-II underwent plyometric Training without supplementation of protein, Group-III underwent plyometric weight training with supplementation of protein and Group-IV underwent plyometric weight training without supplementation of protein for duration of twelve weeks for three days a week. The data obtained from the experimental groups before and after the experimental period were statistically analysed 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 test was applied as post-hoc test to determine the paired mean differences. The level of confidence was fixed at .05 level for all the cases. It may be concluded that the plyometric weight training with supplementation of protein (placebo) group is better than the other experimental groups in improving Triglycerides (TGL).

Keywords: Plyometric weight training with and without supplementation of protein, plyometric weight training, and, triglycerides (TGL)

Introduction
Power output and reactive neuromuscular control represents a component of function. Power and reactive neuromuscular control are perhaps the best measures of success in activities that require rapid force production. Plyometric training, also called reactive training, makes use of the stretch shortening cycle to produce maximum force in the shortest period and to enhance neuromuscular control, efficient rate of force production, and reduce neuromuscular inhibition. Weight training can be one of the safest forms of exercise, especially when the movements are slow, controlled, and carefully defined. However, as with any form of exercise, improper execution might result in injury. When the exercise becomes difficult towards the end of a set, there is a temptation to cheat, i.e. to use poor form to recruit other muscle groups to assist the effort. This may shift the effort to weaker muscles that cannot handle the weight.

Methodology
The purpose of the study is to find out the effects of plyometric training and plyometric weight training with and without protein supplementation on Triglycerides (TGL) Sixty (N=60) College Annamalai University, India were randomly selected as subjects. Subjects selected were randomly assigned into four groups of fifteen each (n=15). Group-I underwent plyometric Training with supplementation of protein, Group-II underwent plyometric Training without supplementation of protein, Group-III underwent plyometric weight training with supplementation of protein and Group-IV underwent plyometric weight training without supplementation of protein for duration of twelve weeks for three days a week. The data obtained from the experimental groups before and after the experimental period were statistically analysed 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 test was applied as post-hoc test to determine the paired mean differences. The level of confidence was fixed at .05 level for all the cases.

Result

The analysis of dependent 't'-test on the data obtained for Triglycerides (TGL) of the subjects in the Pre-test and Post-test of experimental groups and control group have been presented in Table I.

Table 1: The summary of mean and dependent't' test for the pre and post tests on triglycerides (TGL) of experimental groups

Mean	plyometric Training with supplementation of protein Group-(I)	plyometric Training without supplementation of protein Group-(II)	plyometric weight Training with supplementation of protein Group-(III)	Plyometrict weight training without supplementation of protein Group-(IV)
Pre- test mean	109.27	109.07	109.93	109.13
Post-test mean	103.67	104.33	100.87	102.40
't'-test	3.17*	2.39*	5.55*	3.58*

* Significant at .05 level.

(Table value required for significance at .05 level for't'-test with DF 14 is 2.15)

From table I it is learnt that the dependent't'-test values between the pre and posttest means of plyometric Training with supplementation of protein (placebo), plyometric Training without supplementation of protein, plyometric weight training with supplementation of protein (placebo) and plyometric weight training without supplementation of protein are 3.17, 2.39, 5.55 and 3.58 respectively. Since the obtained't'-test value of experimental groups are greater than the table value 2.15 with DF 14 at .05 level of confidence, it is concluded that plyometric Training with supplementation of protein (placebo), plyometric Training without supplementation of protein, plyometric weight training with supplementation of protein (placebo) and plyometric weight training without supplementation of protein have registered significant improvement in performance of Triglycerides (TGL).

The Analysis of covariance (ANCOVA) on Triglycerides (TGL) of experimental groups has been presented in Table -II.

Table 2: Values of Analysis of Covariance for Experimental Groups on Triglycerides (TGL)

Adjusted Posttest Means				Source of Variance	Sum of Squares	DF	Mean Squares	'F' Ratio
Plyometric Training with supplementation of protein Group-(I)	plyometric Training without supplementation of protein Group-(II)	plyometric weight Training with supplementation of protein Group-(III)	plyometric weight training without supplementation of protein Group-(IV)					
103.74	104.53	100.33	102.60	Between With in	153.10 66.87	3 55	51.03 1.22	41.97*

* Significant at.05 level of confidence

(Triglycerides (TGL) Scores in mg/dL)

(The table value required for Significance at .05 level with df 3 and 55 is 2.77)

Table II shows that the adjusted posttest mean value of Triglycerides (TGL) for Plyometric Training with supplementation of protein (placebo), Plyometric Training without supplementation of protein, Plyometric weight training with supplementation of protein (placebo) and Plyometric weight training without supplementation of protein are 103.74, 104.53, 100.33 and 102.60 respectively. The obtained F-ratio of 41.97 for the adjusted posttest mean is more than the table value of 2.77 for DF 3 and 55 required for significance at .05 level of confidence.

The results of the study indicate that there are significant differences among the adjusted posttest means of experimental groups on the increase of Triglycerides (TGL).

To determine which of the paired means has a significant difference, Scheffe's test has been applied as Post hoc test and the results are presented in Table III.

Table 3: The Scheffe's Test for the Differences between The Adjusted Post Tests Paired Means on Triglycerides (TGL)

Adjusted Posttest Means				Mean Difference	Confidence Interval
Plyometric Training with supplementation of protein Group-(I)	Plyometric Training without supplementation of protein Group-(II)	Plyometric weight Training with supplementation of protein Group-(III)	Plyometric weight training without supplementation of protein Group-(IV)		
103.74	104.59	--	--	0.85	1.15
103.74	--	100.33	--	3.41*	1.15
103.74	--	--	102.60	1.14	1.15
--	104.59	100.33	--	4.26*	1.15
--	104.59	--	102.60	1.99*	1.15
--	--	100.33	102.60	2.27*	1.15

* Significant at.05 level of confidence

Table VIII shows that the adjusted posttest mean differences on Plyometric Training with supplementation of protein (placebo) group and Plyometric weight training with supplementation of protein (placebo) group, Plyometric Training without supplementation of protein group and Plyometric weight training with supplementation of protein (placebo) group, Plyometric Training without supplementation of protein group and Plyometric weight training without supplementation of protein group, Plyometric weight training with supplementation of protein (placebo) group and Plyometric weight training without supplementation of protein (placebo) group are 3.41, 4.26, 1.99 and 2.27 respectively and they are greater than the confidence interval value 1.15, which shows significant differences at .05 level of confidence.

The mean differences between Plyometric Training with supplementation of protein (placebo) group and Plyometric

Training without supplementation of protein group, Plyometric Training with supplementation of protein (placebo) group and Plyometric weight training without supplementation of protein group are 0.85 and 1.14. The value is less than the confidence interval value 1.15, which shows insignificant difference at 0.5 level of confidence.

The results of the study further have revealed that there is a significant difference in Triglycerides (TGL) between the adjusted posttest means of Plyometric Training with supplementation of protein (placebo) group and Plyometric weight training with supplementation of protein (placebo) group, Plyometric Training without supplementation of protein group and Plyometric weight training with supplementation of protein (placebo) group, Plyometric Training without supplementation of protein group and Plyometric weight training without supplementation of protein group, Plyometric weight training with supplementation of protein (placebo) group and Plyometric weight training without supplementation of protein (placebo) group.

The values between Plyometric Training with supplementation of protein (placebo) group and Plyometric Training without supplementation of protein group, Plyometric Training with supplementation of protein (placebo) group and Plyometric weight training without supplementation of protein group have showed insignificant differences.

However, the improvement in Triglycerides (TGL) was significantly higher for Plyometric weight training with supplementation of protein (placebo) group than other Experimental Groups.

It may be concluded that the Plyometric weight training with supplementation of protein (placebo) group is better than the other experimental groups in improving Triglycerides (TGL).

The mean values of experimental groups on Triglycerides (TGL) are graphically represented in the Figure-I.

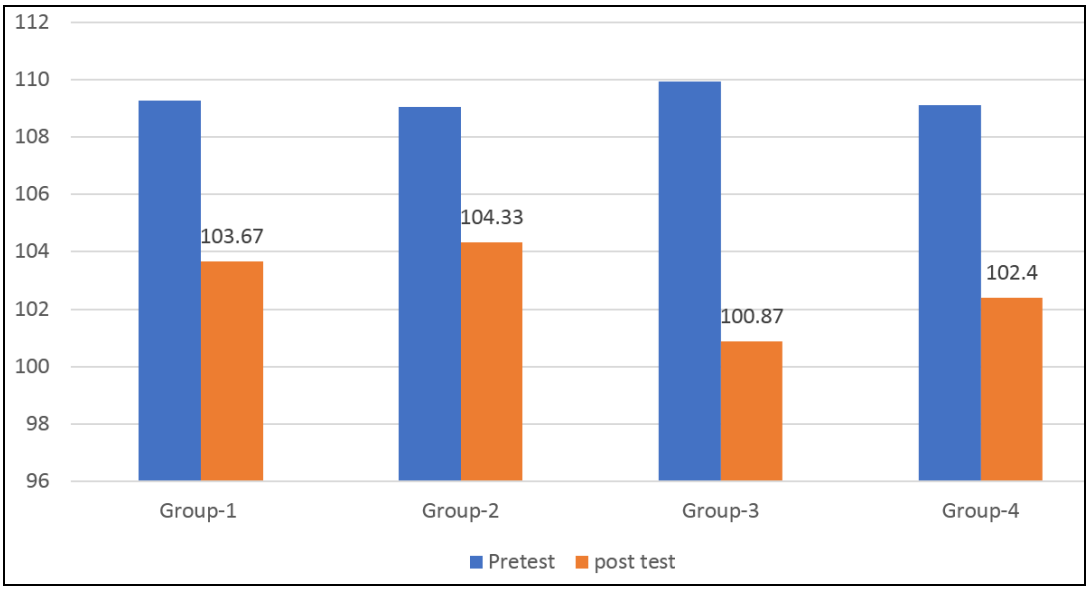

Fig 1

Conclusion

It may be concluded that the Plyometric weight training with supplementation of protein (placebo) group is better than the other experimental groups in improving Triglycerides (TGL).

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