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Combined and isolated effect of ladder and medicine ball training on explosive power among school students

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Abstract

This study was to find out the combined and isolated effect of ladder and medicine ball training on explosive power among school students. The purpose of the study one hundred and twenty (120) high school boys were selected randomly as subjects from in and around Thathanur, Tamil Nadu, India. The selected subjects were randomly assigned into one of four groups of thirty (n=30) each. The group I (n=30) underwent combined training, group II (n=30) underwent ladder training, group III (n=30) underwent medicine ball training for a duration of twelve weeks with three days per week, in addition to the regular schedule and group IV (n=30) had acted as control group which did not undergo, any special training except their leisure time pursuit. Students who have participated on the school teams and are healthy guys will make up the participants in these experimental groups. The subjects were tested on Explosive power before and after the training period. Prior after the training period explosive power were measured by using standing broad jump. Analysis of Covariance (ANCOVA) was applied as statistical tool for the present study. The Scheffé S test was used as post-hoc test at whatever point the 'F' - ratio of the adjusted post-test means were discovered to be significant at 0.05 level of significance. Both, ladder, medicine ball training and combined training group influence on explosive power when compared with control group. Combined (medicine ball and ladder training) may have better influence on muscular endurance of school students.

Keywords: Medicine ball training, ladder training and explosive power

Introduction

Ladder workouts are a sort of strength and sports training where one or more exercises are performed using an ascending and descending repetition pattern. Ladder exercises, which put an emphasis on conditioning and muscular endurance, will help you increase your overall training volume while still employing proper form and technique. The number of exercises in each session and the number of repetitions in between sets will depend on your muscle strength and endurance. Expert ladders often feature two or three exercises, but beginner ladders frequently just have one.

An fantastic piece of fitness gear for strength training is a medicine ball. One of the few pieces of gym equipment, the medicine ball, allows athletes to apply additional power at the beginning of a muscle compression. Competitors may boost their ability to start development even more thanks to the unique feature of medicine balls, which also allows the body to gather and transfer flexible energy. This is the best pre-workout technique for focusing on power since it increases the muscles' capacity to produce force quickly and effectively.

Traditionally, the term "explosive strength" (or explosive power) has been used to define the type of activity that requires a relatively short, all-out muscular effort. This type of strength has been related to the mechanical concept of power, that is, to the time rate of work performance.

Statement of the problem

The purpose of the present study was to find out combined and isolated effect of ladder and medicine ball training on explosive power among school students.

Methodology

The purpose of the study one hundred and twenty (120) high school boys were selected

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randomly as subjects from in and around Thathanur, Tamil Nadu, India. The selected subjects were randomly assigned into one of four groups of thirty (n=30) each. The group I (n=30) underwent combined training, group II (n=30) underwent ladder training, group III (n=30) underwent medicine ball training for a duration of twelve weeks with three days per week, in addition to the regular schedule and group IV (n=30) had acted as control group which did not undergo, any special training except their leisure time pursuit. Students who have participated on the school teams and are healthy guys will make up the participants in

these experimental groups. The subjects were tested on Explosive power before and after the training period. Prior after the training period explosive power were measured by using standing broad jump.

Analysis of data

The data collected prior to and after the experimental periods on explosive power on, combined, ladder and medicine ball training and control group were analysed and presented in the following table -I.

Table 1: Analysis of covariance on Explosive power of combined and isolated medicine ball and ladder training group and control group

	CT Group	LT Group	MBT Group	Control Group	SOV	SS	df	MS	'F'
Pre-test mean S.D	1.9407	1.9420	1.9447	1.9420	B	.001	3	.005	0.170
	0.01486	0.01568	0.01598	0.01544	W	.014	116	.001	
Post-test mean S.D	2.0007	1.9820	1.9647	1.9400	B	.030	3	.010	42.072*
	0.01468	0.01568	0.01598	0.01512	W	.013	116	.001	
Adj. Post- test mean	2.002	1.982	1.962	1.940	B	.032	3	.011	586.604*
					W	.001	115	.005	

* Significant at 0.05 level of significance. (The table value required for significance at 0.05 level of significance with df 3 and 116 and 3 and 115 were 2.69 and 2.70 respectively).

CT- Combined training group

LT- Ladder training group

MBT- Medicine ball training group

The obtained 'F' value on pre-test scores 0.170 is less than the required 'F' value of 2.69 to be significant at 0.05 level. This proves that there is no significant difference among the groups at initial stage and the randomized assignment of the subjects into four groups are successful.

The post test scores analysis proves that there is significant difference among the groups, as the obtained 'F' value 42.072 is greater than the required 'F' value of 2.69. This proves that there is significant difference among the post-test means of the subjects.

Taking into consideration of pre and post-test scores among the groups, adjusted mean scores are calculated and subjected to statistical treatment. The obtained 'F' value of 586.604 is greater than the required table 'F' value of 2.70. This proves that there is significant differences existed among the adjusted means due to twelve weeks of combined, ladder and medicine ball training on explosive power.

Since the significant improvements are recorded, the results are subjected to post hoc analysis using Scheffe's Confidence interval test. The results are presented in Table -II.

Table 2: Scheffe's confidence interval test scores on explosive power

Adjusted post-test means				Mean Difference	Confidence Interval Value
CT Group	LT Group	MBT Group	Control Group		
2.002	1.982			0.02*	0.008
2.002		1.962		0.04*	
2.002			1.940	0.062*	
	1.982	1.962		0.02*	
	1.982		1.940	0.042*	
		1.962	1.940	0.022*	

*Significant at 0.05 level.

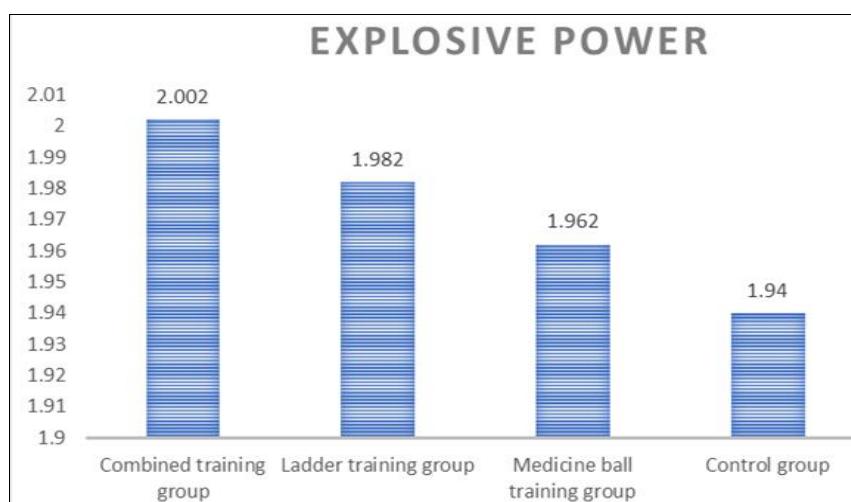


Fig I: Adjusted post-test mean values on explosive power of combined, ladder, medicine ball training group and control groups

As the confidence interval required to be significant at 0.05 level is 0.008 and the obtained values are greater than the required value, it is observed that the significant difference is found to be existed.

The ordered adjusted means on explosive power are illustrated through bar diagram for better understanding of the results of this study in Figure-I.

Conclusion

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

The research study also shows that both, combined, ladder and medicine ball training have improved their explosive power when compared with the control group. In addition, the results of the tests shows that there was a significant difference between experimental groups.

Recommendations

The following recommendations were drawn, from the results of the present study:

1. Further studies may be made to investigate the effect of medicine ball training and ladder training on anthropometric measures, bio-chemical variables.
2. The effect of combined and isolated medicine ball training and ladder training programmes can be assessed on physical factors.
3. In the current study, the subjects chosen was male students and in future studies, the subjects may be chosen obese female students and middle-aged obese men and women. etc.

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