



Impact of ladder training on change of directions speed and explosive power of grassroots badminton girls

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Abstract

This study was examined to determine the impact of ladder training on change of directions speed and Explosive power of grassroots badminton girls. To achieve the purpose of the study 30 grassroots girls badminton players were selected from Stane's anglo Indian school, Coimbatore. The participants will be split into two equal groups at random (n=15). Group-I ladder training on change of directions speed and explosive power (CDSEPG) and Group - II was act as a control group (CG). Throughout a period of twelve weeks, the experimental groups underwent the associated training three days a week (Monday, Wednesday, and Friday). Other than their routine, the control group received no training of any kind. The power parameters were change of direction (t-test) and explosive power (Sargent jump). The data collected from the subjects was statistically analysed with 't' ratio to find out the significant improvement if any at 0.05 level of confidence.

Keywords: Ladder training, change of directions speed, explosive power and grassroots badminton girls

Introduction

Ladder training is active and indispensable to increase foot speed, agility, timing and coordination for the athlete. This training should be specific to game situations (Srinivasan & Saikumar, 2012) It is the multi-directional training, which helps to improve strength, power, balance, agility, coordination, proprioception, core and joint stability, foot speed, hand eye coordination, reaction time and mobility. It is very much fun to perform the task on ladder. The training session in ladder drills will help us to achieve various above objective by performing drills in a rhythm and teaching the body and mind various foot combinations (Smurthi Bhisaji Pawar 2018).

Ladder exercises for muscular endurance and conditioning are designed to help the players and improve their overall training volume while maintaining proper form and technique. (Howard, 2019).

Statement of The Problem

The goal of the study is to find out the impact of ladder training on change of directions speed and explosive power of grassroots badminton girls.

Hypothesis

It was hypothesized that the ladder training would produce significant changes over the change of directions speed and Explosive power of grassroots badminton girls.

Methodology

The purpose of this training was designed to determine the impact of ladder training on change of directions speed and Explosive power of grassroots badminton girls. To achieve the purpose of the study thirty grassroots female badminton

players from Stane's Anglo Indian School in Coimbatore were chosen. The subjects were randomly assigned to two equal groups, namely, change of directions speed training after regular physical exercise (CDSEPG) group (n=15) and control group. The respective training was given to the experimental groups the 3 days per week (alternate days) for the training period of twelve weeks. Other than their routine, the control group received no training of any kind. The sergeant leap was used to measure explosive force, while the t-test was used to measure change of direction speed.

Criterion Measures

Variables	Test items	Unit of Measurements
Explosive power	sergeant jump (Allen Sargent 1921)	In centimetres
Change of direction speed	T-test	In seconds

Training Protocol

The training programme was lasted for 45 minutes for session in a day, 3 days in a week for a period of 12 weeks duration. These 45 minutes included 5 minutes warm up, 15 minutes regular physical exercise, ladder training for 20 minutes and 5 minutes warm down. Every three weeks of training 5% of intensity of load was increased from 65% to 80% of work load. The volume of ladder training is prescribed based on the number of sets and repetition. The equivalent in regular physical exercise and ladder training is the length of the time each action is held for and the number action in total 3 day per weeks (Monday, Wednesday and Friday) the selected subjects underwent regular physical exercise on other 3 days (Tuesday, Thursday, Saturday).

Table 1: Computation Of Analysis Of T Ratio On Explosive Power And Change Of Direction Speed Of Grassroot Badminton Girls On Experimental And Control Group

		Experimental Group				
		Mean	N	Std. Deviation	Std. Error Mean	T ratio
EP	Pre test	13.70	15	0.14	0.046	7.14*

	Post test	12.74	15	0.26		
CDS	Pre test	21.09	15	0.31	0.135	14.57*
	Post test	23.06	15	0.47		
Control Group						
EP	Pre test	13.07	15	0.14	0.018	1.46
	Post test	13.04	15	0.13		
CDS	Pre test	21.09	15	0.31	0.056	1.42
	Post test	21.17	15	0.38		

*significant level 0.05 level (degree of freedom 2.14,1 and 14)

Table I reveals the computation of mean, standard deviation and 't' ratio on selected power parameters, explosive power and change of direction speed variables of ladder training after regular physical exercise. The obtained 't' ratio on explosive power and change of direction speed were 7.14 and 14.57 respectively. The required table value was 2.14 for the degrees of freedom 14 at the 0.05 level of significance. Since the obtained t values were greater than the table value it was found statistically significant.

Table I reveals the computation of mean, standard deviation and 't' ratio on selected power parameters, namely explosive power and change of direction speed variables of ladder training after regular physical exercise. The obtained 't' ratio on explosive power and change of direction speed were 1.46 and 1.42 respectively. The required table value was 2.14 for the degrees of freedom 14 at the 0.05 level of significance. Since the obtained t values were lesser than the table value it was found statistically insignificant.

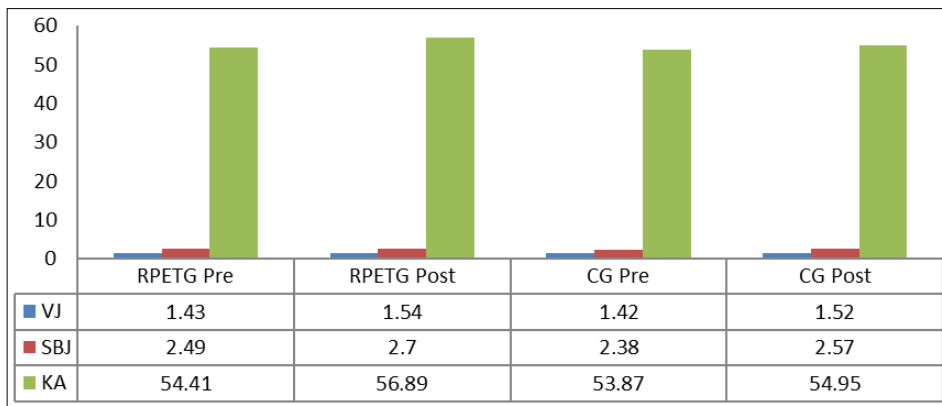


Fig 1: Bar Diagram Showing The Mean Value On Explosive Power And Change Of Direction Speed Of Grassroot Badminton Girls On Experimental And Control Group

Discussion And Findings

The conclusions of the study confirmed that the 12 weeks ladder training after routine physical exercise significantly improved the explosive power and change of directions speed of grassroots badminton girls. From the result of the study it is speculated that ladder training after regular physical exercise is more efficient to bring out desirable changes over change of directions speed and explosive power of grassroots badminton girls. The finding of the study correlated with the study carried out by Ramirez-Campillo *et al.*, (2020) [4] effects of plyometric jump training on vertical jump height of volleyball players: a systematic review with meta-analysis of randomized-controlled trial. Carvalho (2014) [5] Effects of strength training combined with specific plyometric exercises on body composition. vertical jump height and lower limb strength development in elite male handball players. Rajamohan *et al.*, (2010) evaluated the effects of a complex training program, a combined practice of weight training and plyometric, and contrast resistance and plyometric training on selected strength and power parameters in young healthy athletes. Sedano *et al.*, (2011) determined the effects of a 10-week plyometric training program on explosive strength, acceleration capacity and kicking speed in young elite soccer players. The results of the present study indicates that the ladder training methods is appropriate protocol to improve explosive power and change of direction speed of grassroots badminton players. The

discrepancy between the results and the results of previous studies might be attributed to several reasons, such as the training experience level of the subjects, the training programme. in intensity used and the duration of the training programme.

Conclusion

It was found that 12 weeks of ladder training following consistent physical activity greatly increased the grassroots badminton girls change of direction speed. Additionally, it was has been discovered that the explosive power of grassroots badminton girls was significantly improved with 12 weeks of ladder training following regular exercise.

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