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**M Baskaran**  
Ph.D., Research Scholar,  
Department of Physical  
Education, Bharathiar  
University, Coimbatore, Tamil  
Nadu, India

**Dr. T Radhakrishnan**  
Professor, Department of  
Physical Education, Bharathiar  
University, Coimbatore, Tamil  
Nadu, India

## Effect of resistant training on selected motor fitness components of adolescent Boys kabaddi players

**M Baskaran and Dr. T Radhakrishnan**

### Abstract

Resistance training increases muscle strength by making your muscles work against weight or force. Different forms of resistance training include using free weights, weight machines, resistance bands, and your own body weight. The purpose of the study was to investigate the effect of resistance training on the motor fitness components of adolescent Boys kabaddi players. For this study, thirty Boys kabaddi players were selected from Vidya Vikas Matriculation Higher Secondary School and Vikash Vidyalaya Matriculation Higher Secondary School in Tiruppur district, Tamil Nadu. They were divided into two equal groups of fifteen subjects each, namely the experimental group and the control group. The selected subjects were under 14 years of age.

The experimental group (Group-I) underwent resistance training three days per week for six weeks. The control group (Group-II) did not undergo any special training program apart from their regular activities. The following dependent variables were selected for this study: agility, endurance, and leg explosive power. Data on these selected dependent variables were collected both prior to and immediately after the six-week experimental period as pre-test and post-test, respectively.

The data were analyzed using the dependent 't-test to determine the significant differences among the groups. A confidence level of 0.05 was fixed to test the level of significance, which was considered appropriate. The results of the study showed that the resistance training program led to significant improvement in the selected motor fitness components.

**Keywords:** Chronic low back pain, Interferential current electrotherapy, physiotherapy, rehabilitation

### Introduction

It is possible that resistance training may benefit performance during kabaddi skills, as shuttle running requires short, high-intensity accelerations and decelerations. Resistance training involves short, high-speed movements that utilize the stretch-shortening cycle (Potach et al., 2000) [7]. While the benefits of resistance training have been demonstrated in team sports like kabaddi and Kho-Kho, as well as individual sports like swimming, no investigations have been carried out on its effects on kabaddi performance specifically. A recent review suggested that resistance training may improve change-of-direction and straight-line running times, which are typical in kabaddi offensive skills, especially when exercises involving horizontal and lateral jumps are included. However, this review did not report any research on the effects of resistance training on prolonged, intermittent shuttle running times, as required in a successful batting innings. In the context of kabaddi, essential skills like holding, riding, blocking, and breath-holding are highly needed. While these skills are fundamental for all kabaddi players, the actual performance potential depends on specific variables. Coaches and trainers may not be able to determine these variables solely through subjective observations of performances. A scientific analysis of players' performance with respect to their skills might prove more beneficial. This approach could aid in making informed selections based on scientific data and also help maximize the players' potentials by regrouping and synchronizing the available talents within the team. Consequently, studying and analyzing performance can update the selection process, training methods, game strategies, and performance monitoring in a more effective manner.

### Methods and Materials

The purpose of this study was to examine the effect of resistance training on the motor fitness variables of adolescent boys kabaddi players.

**Corresponding Author:**  
**M. Baskaran**  
Ph.D., Research Scholar,  
Department of Physical  
Education, Bharathiar  
University, Coimbatore, Tamil  
Nadu, India

For the present study, 30 boys in the 14 years age category, who were studying in Vidya Vikas Matriculation Higher Secondary School and Vikash Vidyalaya Matriculation Higher Secondary School in Tiruppur district, were selected as subjects. Among them, 15 subjects were chosen for the experimental group. The subjects were informed about the objectives of the study and the tasks they would be performing. Their physical education teachers were requested to motivate and advise them to fully cooperate during the research study.

The experimental group participated in the training programme, while the remaining 15 subjects were taken as the control group, and they did not undergo any training. The selected variables for testing were agility, which was tested using the 4 X 10 meter shuttle run in seconds, endurance, which was tested by the 600-yard run in minutes, and leg explosive power, which was tested using the standing broad jump in meters.

The training programme for the experimental group lasted for 8 weeks, with 60-minute sessions held on three alternative days each week. Each training session started with 10 minutes of strength exercises, followed by 15 minutes of warm-up, 25 minutes of training workout with rest intervals of 30 seconds between sets, and finally, a 10-minute cool-down. The repetitions were gradually increased according to the training schedule, which included Up-Hill Running, Sand Training, Steps Workout, and Off Squat.

### Statistical Analysis

The collected data before and after the eight-week training period on the aforementioned variables, under the influence of resistance training, were statistically analyzed using the paired 't' test to determine the significant improvements between the pre-test and post-test. The derived results are discussed in the following tables.

**Table I:** Computation of 't' ratio on Motor fitness components of adolescent boys kabaddi players.

Group	Variables		Mean	SD	SE	't' ratio
Experimental group	Agility	Pre-test	9.42	1.12	0.08	4.55*
		Post-test	8.92	1.25		
	Endurance	Pre-test	1.30	0.91	0.42	3.96*
		Post-test	1.22	0.62		
	Leg Explosive Power	Pre-test	1.76	0.28	0.05	3.09*
		Post-test	1.93	0.32		
Control group	Agility	Pre-test	9.45	1.18	0.09	1.17
		Post-test	9.51	1.36		
	Endurance	Pre-test	1.42	1.12	0.12	1.05
		Post-test	2.08	1.25		
	Leg Explosive Power	Pre-test	1.52	0.19	0.04	0.98
		Post-test	1.31	0.17		

\* Significant level 0.05 level, Degree of freedom (2.145, 1 and 14)

Table I shows the computation of mean, standard deviation, and 't' ratio on the selected variables, namely Agility, Endurance, and Leg Explosive power, for the experimental group. The obtained 't' ratios for Agility, Endurance, and Leg Explosive power were 4.55, 3.96, and 3.09, respectively. The required table value for the degrees of freedom 1 and 14 at the 0.05 level of significance was 2.145. Since the obtained 't' values were greater than the required table value, they were found to be statistically significant for the experimental group.

Furthermore, the computation of mean, standard deviation, and 't' ratio on the selected variables, namely Agility, Endurance, and Leg Explosive power, was conducted for the control group. The obtained 't' ratios were 1.17, 1.05, and 0.98, respectively. The required table value for the degrees of freedom 1 and 14 at the 0.05 level of significance was 2.145. Since the obtained 't' values were less than the required table value, they were found to be statistically insignificant for the control group.

### Discussion on Finding

Many studies have suggested that resistance training may be valuable in improving motor fitness parameters such as agility, endurance, and leg explosive power. It has been pointed out that effective strength training can lead to improvements in selected physical fitness variables of kabaddi players, especially with a training duration of six weeks, three days per week (Bhadresh S Tandex). Such improvements in physical fitness are beneficial for kabaddi players who require quick movements during their sports, and these results are supported by findings from other studies.

In a study of kabaddi players, the authors used tests to determine agility (Dr. C. Lakshmanan). They found that the players became quicker and more agile, enabling them to reach more balls and become more effective kabaddi players. Natural adaptations usually occur when kabaddi players respond or react, resulting in improved coordination between the central nervous system signals and proprioceptive feedback (Tamilmani, 2002) <sup>[10]</sup>.

Numerous research studies have consistently suggested that resistance training is valuable for improving variables such as agility, endurance, and leg explosive power in kabaddi players.

Hence it recommended that systematic designed resistance training such as six week of a training programme helps to improved motor fitness parameters which is absolutely needed for better performance in almost all games.

### Conclusion

This study shows that both groups (experimental and control group) were individually effective in improving agility, endurance, and leg explosive power in semi-professional kabaddi players. However, the experimental group showed greater improvements in all three motor fitness parameters (agility, endurance, and leg explosive power). Hence, we conclude that resistance training in the experimental group is more effective in improving motor fitness in adolescent boys kabaddi players.

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