



# International Journal of Physical Education, Sports and Health

P-ISSN: 2394-1685  
E-ISSN: 2394-1693  
Impact Factor (ISRA): 5.38  
IJPESH 2020; 7(4): 226-229  
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[www.kheljournal.com](http://www.kheljournal.com)  
Received: 16-05-2020  
Accepted: 18-06-2020

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## Effects of skill related training on cardiovascular endurance and vital capacity of Kabaddi players

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### Abstract

Kabaddi is basically a combative sport, with seven players on each side; played for a period of 40 minutes with a 5 minutes break (20-5-20). The core idea of the game is to score points by raiding into the opponent's court and touching as many defense players as possible without getting caught on a single breath. The game was played all over the country in various forms and by various names. It was called 'Chadu Gudu' in Southern India, 'Hu Tu Tu' in Western India, 'Ha do do' in Eastern India and 'Kabaddi' in North India. The purpose of the study was to find out the effects of skill related training on cardiovascular endurance and vital capacity of kabaddi players. For this purpose 60 inter collegiate level men kabaddi players, who represented their colleges at inter collegiate level tournaments were randomly selected from different colleges in Andhra Pradesh. The age group of the subjects selected were between 18 to 23 years. Pre test was conducted for all the 60 subjects on selected cardiovascular endurance and vital capacity. The experimental group participated in skill related training for a period of twelve weeks. The control group did not participate in any of the training programme. The post test was conducted on the above said dependent variables after a period of twelve weeks for all the four groups. The differences between the initial and final tests were considered as the effect of respective treatments. To test statistical significance of the differences, ANCOVA was employed. In all cases 0.05 level.

**Keywords:** Cardiovascular endurance and vital capacity

### Introduction

Kabaddi is basically a combative sport, with seven players on each side; played for a period of 40 minutes with a 5 minutes break (20-5-20). The core idea of the game is to score points by raiding into the opponent's court and touching as many defense players as possible without getting caught on a single breath. The game was played all over the country in various forms and by various names. It was called 'Chadu Gudu' in Southern India, 'Hu Tu Tu' in Western India, 'Ha do do' in Eastern India and 'Kabaddi' in North India. Some of the types of the game are Amar, Kamini and Sanjeevini. At present the Sanjeevini system of play is adopted with several changes in the rules and regulations. The game is not only simple but inexpensive and can be played on a small patch of ground. It does not require any sophisticated gadgets or equipment. As an outdoor game it is dependent upon a activities arising out of inherent interest and the natural instinct of attack and self-defense. In stimulates feelings of pleasure and through and through the exercise of skills provides thrill for the participants.

### Training

Performance sports aim at high sports performance and for most physical and psychic capacities of sports men are developed to extreme limits. This normally does not happen in other areas of human activities. As a result, performance sports field possess valuable knowledge about the limits to which human performance and various performance factors can be developed. It also lead to discovery of means and methods for improving various physical and psychic capacities (performance factors) to exceptionally high level. This knowledge can be faithful by applied to other areas of sports and human activities.

### Skill Related Training

The fundamental skills of Kabaddi can be effectively taught with the help of circuit training. The nature of the sport requires players to operate at an optimum level in multiple areas

endurance, speed, power, flexibility and agility which is why Manjrekar focuses on functional movements. Various methods such as the continuous method, interval method, repetition method and resistance training method can be adopted for Circuit training keeping in view the age and potential of the sports person as well as the aim of the training programme (Rao, 1972).

### Objectives of the study

There are various training methods followed by players to improve their physical fitness and physiological variables. Every player intends to improve their skills, which will also benefit to improve their physical fitness and physiological levels. Keeping these in mind, the investigator selected this study to find out the effect of skill related training on physical fitness and physiological variables of kabaddi players. In doing so, the investigator would formulate suitable skill related training schedule for the kabaddi players. Further, the aim of the study was to experiment the skill related training on kabaddi players and to determine how far the skill related training improves selected cardiovascular endurance and vital capacity.

### Results and discussions

This study deals with analysing the data from the data samples under study. The purpose of the study was to find out the effects of skill related training on cardiovascular endurance and vital capacity of kabaddi players. For this purpose 60 inter collegiate level men kabaddi players, who represented their colleges at inter collegiate level tournaments were randomly selected from different colleges in Andhra Pradesh. The age group of the subjects selected were between

18 to 23 years. They were further divided into two groups namely skill related training group, and control group (CG), on random basis. Taking into consideration the feasibility and availability of instruments cardiovascular endurance and vital capacity were selected. The study was formulated as a true random group design consisting of a pre-test and post-test. The subjects (N=60) were randomly assigned to two groups of thirty inter collegiate level men kabaddi players. The groups were designed as experimental group I – skill related training group and control group respectively. A pilot study was conducted to (a) to formulate suitable skill related training schedule (2) assess the capacity and benefits of formulated training method (3) and the beneficial effects of cardiovascular endurance and vital capacity of kabaddi players. Pre-test was conducted for all the 60 subjects on cardiovascular endurance and vital capacity. The experimental group participated in skill related training for a period of twelve weeks. The control group did not participate in any of the training programme. The post test was conducted on the above said dependent variables after a period of twelve weeks for all the four groups. The differences between the initial and final tests were considered as the effect of respective treatments. To test statistical significance of the differences, ANCOVA was employed. In all cases 0.05 level was fixed to test the hypothesis.

### Results on cardiovascular endurance

The initial and final means on Skill related training group and control group on Cardiovascular Endurance among kabaddi players and the obtained results on Analysis of Covariance (ANCOVA) is presented in Table 1.

**Table 1:** Computation of analysis of covariance on cardiovascular endurance

	Experimental Group	Control	Source of Variance	Sum of Squares	Df	Mean Squares	Obtained F
Pre Test Mean	2295.17	2340.00	Between	30150.42	1	30150.42	1.59
			Within	1100474.17	58	18973.69	
Post Test Mean	2462.00	2365.33	Between	140166.67	1	140166.67	9.35*
			Within	869626.67	58	14993.56	
Adjusted Post Test Mean	2479.78	2347.55	Between	255262.84	1	255262.84	82.05*
			Within	177334.48	57	3111.13	
Mean Diff	166.83	25.33					

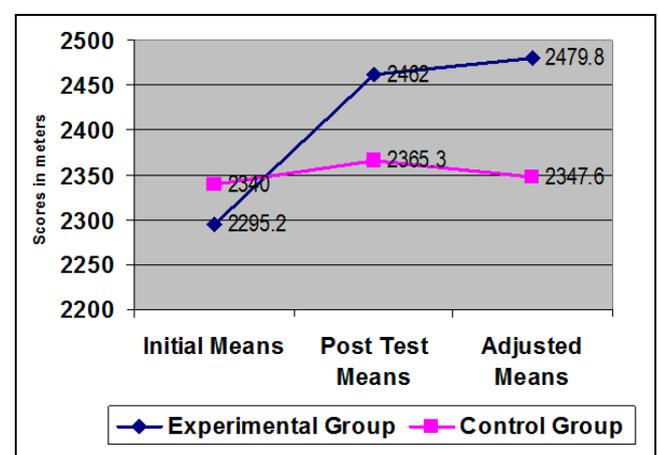
Table F-ratio at 0.05 level of confidence for 1 and 58 (df) =4.01, 1 and 57(df) =4.01.

The pre-test mean on experimental group was 2295.17, and control group was 2340.00 and the obtained F value was 1.59, which was less than the required F value of 4.01 to be significant. Hence, it was not significant and the groups were equal at initial stage.

The comparison of post-test means, experimental group 2462.00 and control group 2365.33 proved to be significant at 0.05 level as the obtained F value 9.35 was greater than the required table F value of 4.01 to be significant at 0.05 level. Taking into consideration the initial and final mean values adjusted post-test means were calculated and the obtained F value of 82.05 was greater than the required F value to be significant 4.01 and hence, there was significant difference.

Thus, it was proved that experimental group gained mean difference on, Cardiovascular Endurance 166.83 was due to Skill related training given to kabaddi players, and the difference was found to be significant at 0.05 level. The initial, post and adjusted means values of experimental and control group on Cardiovascular Endurance is presented in

Figure 1 for better understanding of the results of this study.



**Fig 1:** Bar Diagram Showing Initial, Final and Adjusted Means on Cardiovascular Endurance of Experimental and Control Groups

## Discussions

The results presented in Table 1 proved that the Cardiovascular Endurance has not been significantly improved among control group as they do not underwent Skill related training. However, the twelve weeks Skill related training given to the experimental group significantly improved Cardiovascular Endurance among kabaddi players. The statistical mean difference between initial test and final test of experimental group stood at 166.83 and control group stood at 25.33. The adjusted mean taking into consideration of initial and final means on Cardiovascular Endurance among experimental group was 2479.78 and control group was 2347.55 and showed favourable effects on skill related training group than control group. And the differences,

statistically treated using ANCOVA, were found to be significant at 0.05 level as the obtained F value of 82.05 was greater than the required table F value of 4.01 to be significant at 0.05 level. Thus, it was proved that Skill related training was significantly better than control group in favourably influencing Cardiovascular Endurance of the kabaddi players.

## Results on vital capacity

The initial and final means on Skill related training group and control group on Vital Capacity among kabaddi players and the obtained results on Analysis of Covariance (ANCOVA) is presented in Table 1.

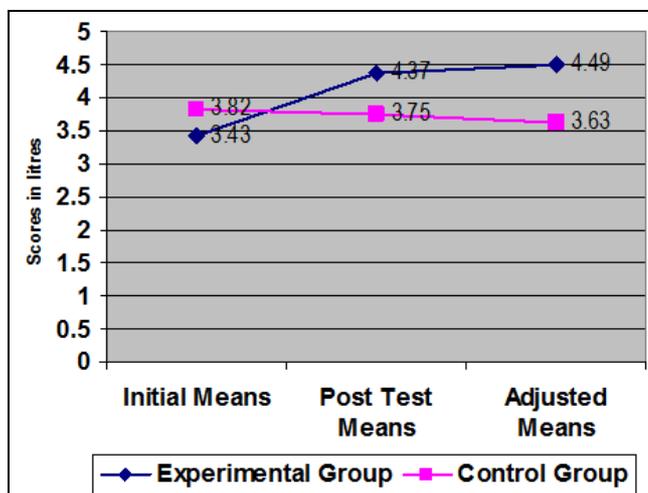
**Table 2:** Computation of analysis of covariance on vital capacity

	Experimental Group	Control	Source of Variance	Sum of Squares	Df	Mean Squares	Obtained F
Pre Test Mean	3.43	3.82	Between	2.25	1	2.25	6.27
			Within	20.86	58	0.36	
Post Test Mean	4.37	3.75	Between	5.80	1	5.80	17.40*
			Within	19.32	58	0.33	
Adjusted Post Test Mean	4.49	3.63	Between	10.16	1	10.16	52.64*
			Within	11.00	57	0.19	
Mean Diff	0.94	-0.07					

Table F-ratio at 0.05 level of confidence for 1 and 58 (df) =4.01, 1 and 57(df) =4.01.\* Significant The pre test mean on experimental group was 3.43, and control group was 3.82 and the obtained F value was 6.27, which was less than the required F value of 4.01 to be significant. Hence, it was not significant and the groups were equal at initial stage.

The comparison of post-test means, experimental group 4.37 and control group 3.75 proved to be significant at 0.05 level as the obtained F value 17.40 was greater than the required table F value of 4.01 to be significant at 0.05 level. Taking into consideration the initial and final mean values adjusted post-test means were calculated and the obtained F value of 52.64 was greater than the required F value to be significant 4.01 and hence, there was significant difference.

Thus, it was proved that experimental group gained mean difference on, Vital Capacity 0.94 was due to Skill related training given to kabaddi players, and the difference was found to be significant at 0.05 level. The initial, post and adjusted means values of experimental and control group on Vital Capacity is presented in Figure 2. for better understanding of the results of this study.



**Fig 2:** Bar Diagram Showing Initial, Final and Adjusted Means on Vital Capacity of Experimental and Control Groups

## Discussions

The results presented in Table 2. proved that the Vital Capacity has not been significantly improved among control group as they do not underwent Skill related training. However, the twelve weeks Skill related training given to the experimental group significantly improved Vital Capacity among kabaddi players. The statistical mean difference between initial test and final test of experimental group stood at 0.94 and control group stood at -0.07. The adjusted mean taking into consideration of initial and final means on Vital Capacity among experimental group was 4.49 and control group was 3.63 and showed favourable effects on skill related training group than control group. And the differences, statistically treated using ANCOVA, were found to be significant at 0.05 level as the obtained F value of 52.64 was greater than the required table F value of 4.01 to be significant at 0.05 level. Thus, it was proved that Skill related training was significantly better than control group in improving Vital Capacity of the kabaddi players.

## Conclusions

Within the limitations and delimitations of the study, the following conclusions were drawn.

1. It was concluded that skill related training significantly improved selected cardiovascular endurance of kabaddi players.
2. It was concluded that skill related training significantly beneficially altered selected vital capacity of kabaddi players.
3. It was concluded the skill related training formulated for this study was found to be beneficial to the kabaddi players.

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