
A Comparative Study on Vital Capacity of Different Level Kabaddi Players

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ABSTRACT

Kabaddi is basically an Indian game, which requires both skill and power, and combines the characteristics of wrestling and rugby. The evaluation of the performance implicates the recognition and denomination of the individual level of the components of the sporting performance or of a conditioning situation. Kabaddi is an intermittent type of sport and its demands can be met by an optimum level of aerobic and anaerobic capacity. For the purpose of this study sample of one hundred fifty (N=150) male kabaddi players of age ranging from 18-25 years, of intercollegiate, North zone, and All India level kabaddi players, who participated in inter-college, north zone and Inter zone Kabaddi competitions Held at C.C.S. University, Meerut, India were selected. Spiro – meter was used to assess the vital capacity of different level kabaddi players. Analysis of variance (ANOVA) was applied to assess the mean difference among the different level kabaddi players. Results of statistical analysis revealed that the mean vital capacity of all India level Kabaddi players was greatest followed by North – Zone and intercollegiate level kabaddi players.

Keywords: Vital Capacity, Kabaddi players, All India, North zone and Intercollegiate level.

INTRODUCTION

Kabaddi is basically an Indian game, which requires both skill and power, and combines the characteristics of wrestling and rugby. Kabaddi is aptly known as the “GAME OF THE MASSES” due to its popularity, simple, easy to comprehend rules, and public appeal. The game calls for no sophisticated equipment what so ever, which makes it a very popular sport in the developing countries. Though it is basically an outdoor sport played on clay court, of late the game is being played on synthetic surface indoors with great success. The duration of the game is 45 minutes for men & junior boys with a 5 minute break in between for the teams to change sides. In the case of women & sub junior boys, the duration is 35 minutes with a 5 minute break in between.

The game calls for agility, good lung capacity, muscular coordinates, presence of mind and quick responses. For a single player to take on seven opponents is no mean task, requires dare as well as an ability to concentrate and anticipate the opponent’s moves. (Rao, 2002).

Kabaddi is a complete collective sporting modality, characterized by the great amount and variety in its movements, ball manipulations and interaction with other athletes. Looking for a better dynamic and objectivity, Kabaddi passed through several evolutionary processes that, consequently, started to demand from the athlete's larger physiological adaptations and other characteristics. The athlete's income in the Kabaddi of high level depends directly on several variables. The evaluation of the performance implicates the recognition and denomination of the individual level of the components of the sporting performance or of a conditioning situation. (Weineck, 1999).

As selection of a proper person for Kabaddi is performed in early ages, physiological properties with physical profile should be learned. The observed variables comprise of respiration parameters, blood pressures, aerobic and anaerobic capacity. Aerobic exercise shortly means a work with oxygen. It is realized with working of large muscle groups in the presence of abundant oxygen, at 60% - 80% level of maximum pulse for at least 12 minutes or long period. Athletic performance in kabaddi is a function of aerobic fitness anaerobic fitness and lung capacity (Dey et al., 1993). From a physiological point of view, the respiratory function tests, like other physiological tests must be of the utmost importance for measuring the fitness of an athlete (Astrand & Rodahl, 1970). Respiratory system is an important system of human body where gaseous exchange takes place with diffusion of enormous amounts of oxygen into the blood during physical activity (Khurana, 2005). It is suggested by Dey et. al. (1993), that kabaddi is an intermittent type of sport and its demands can be met by an optimum level of aerobic and anaerobic capacity.

METHODS AND MATERIALS

Selection of Sample:

A sample of one hundred fifty (N=150) male kabaddi players of age ranging from 18-25 years, which includes fifty each (50) of intercollegiate, North zone, and All India level kabaddi players, who participated in inter-college, north zone and Inter zone Kabaddi competitions Held at C.C.S. University, Meerut, India was selected. The events were held on January – February 2015. All the participants were informed about objectives and methodology of the study and they agreed to participate in this study. Purposive sampling technique was used to select the subjects.

PROCEDURE OF TEST

Peak expiratory flow rate was assessed by Peak flow meter. The instrument has a detectable mouth piece connected to a small plastic drum which has a graduate dial with marking ranging from 0-700, per 100 equal to 1 liter. The subject was asked to hold the instrument in one of his hand in such way that the figures could not obstruct any way the slot. Subject was asked to inhale through the mouth to his maximum capacity and then expelled the maximum possible amount of air by blowing out into mouth piece with a hard blow. This caused the marker to move up through the scale. The value where the marker comes to rest was recorded as the peak air flow rate to the nearest liters per minute.

STATISTICAL PROCEDURE

One way Analysis of Variance (ANOVA) was applied to find out the significance of differences with regard to selected Peak expiratory flow rate of different level kabaddi players. Least Significance Difference (LSD) test was applied to see the direction and significance of differences where 'F' value found statistically significant. The level of significance was set at 0.05.

ANALYSIS OF DATA

*Table – 1
One-way Analysis of Variance of Peak Expiratory flow Rate of different level Kabaddi Players*

Source of Variance	Degree of freedom	Sum of square	Mean sum of square	F – Value
Treatment	2	13.6173	6.80865	37.97*
Error	147	26.3629	0.179339	

*Significant at 0.05 level

Tab – $F_{.05}(3, 147) = 2.67$

Since the computed F – value (37.97) is greater than tabulated $F_{.05}$ (2.67), our hypothesis has been rejected the null hypothesis and further we are able to conclude that the evidence is sufficient to indicate a difference in mean vital capacity for all three levels of kabaddi players. To further analyse which level of kabaddi players is better in mean vital capacity, pair wise mean comparison analysis was done by using LSD test.

*Table – 2
Pair wise Mean Comparison of Least Significant Difference of different levels Vital Capacity
Treatment means Arranged in order to magnitude*

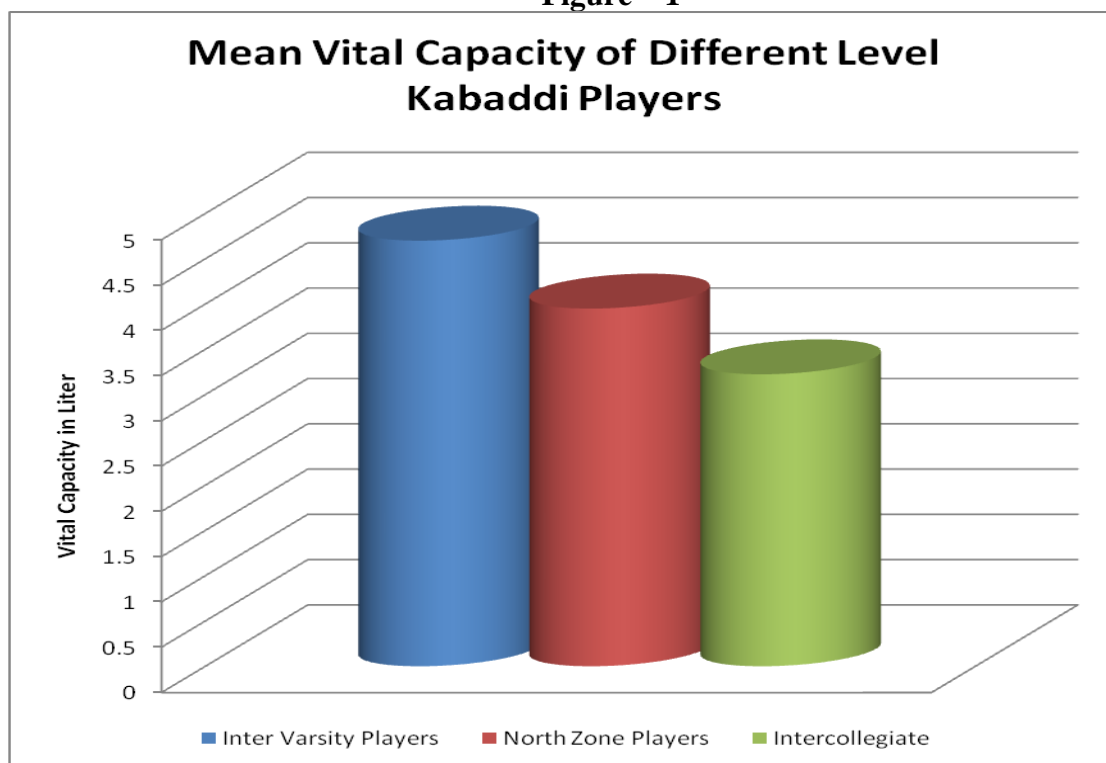
Inter Varsity Players	North Zone Players	Intercollegiate	Mean difference	CD Mean
4.7	3.95		0.75*	0.166006
4.7		3.224	1.476*	0.166006
	3.95	3.224	0.726*	0.166006

*Significant at 0.05 level

Comparing the pair wise difference of means with critical difference it is evident that significant difference was exists between mean vital capacity of Intervarsity kabaddi players and North Zone kabaddi players. Further the mean vital capacity of Intervarsity kabaddi players is also significantly greater than Mean vital capacity of intercollegiate level kabaddi players. And significant difference was exists between mean vital capacity of north zone kabaddi players and intercollegiate level kabaddi players.

Thus it may conclude that intervarsity kabaddi players is the best in vital capacity followed by north zone and intercollegiate level kabaddi players.

Figure – 1



DISCUSSION OF FINDINGS

Analysis of variance reveals that intervarsity kabaddi players is the best in Vital Capacity followed by north zone and intercollegiate level kabaddi players.

The exercise and sport training are very strenuous in Kabaddi, therefore each player is require a better physical fitness. Physically fit athletes possess superior respiratory functions relative to less fit subjects (Johnson et al., 1981; Johnson et al., 1991). Lakhera et al. (1984) observed strenuous training benefits higher respiratory functions by respiratory muscle hypertrophy. Due to regular exercise, athletes tend to have an increase in respiratory capacity, especially when the exercise is strenuous (Adegoke & Arogundade, 2002). The results of the present study in line with the study of Haque & Ghosh, (2014). These findings of the present study of De at al.(1982), who found respiratory function values were higher in inter-university kabaddi players than the Indian sedentary population (De at al.,1982). In kabaddi, raider and catcher mostly repeat body movements involve catching, holding, locking and jumping movements and there might be differences in respiratory indices of the subjects in the Indigenous game groups.

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