



International Journal of Research in Academic World



Received: 16/October/2023

IJRAW: 2023; 2(11):27-30

Accepted: 19/November/2023

A Comparative Study on Forced Vital Capacity of Inter-Collegiate Men Handball and Kho-Kho Players in Madhugiri Taluk

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Abstract

The purpose of this study was to compare the Forced Vital Capacity of handball and Kho-Kho players. To meet the study's goal, forty (40) players, 20 each from handball and kho-kho game were chosen at random from Madhugiri Taluk, Tumkur district as subjects. Players were aged between 21 to 23 years. Forced vital capacity was measured using spirometry. The study was determined to be significant for the 05 by representing data in tabular form and employing several sorts of table interpretations. Regardless of sport (handball or Kho-Kho), there was a substantial difference between handball and Kho-Kho players. Among them are kho-kho players fared better than Handball players in terms of survivability.

Keywords: Physiological, vital capacity, handball and kho-kho players

Introduction

Physical Education is an important part of education. The physical refers to body with reference to various bodily characteristics like Physical strength, Physical development, Physical process, Physical health, and Physical appearance. It refers to body as contrasted to mind. Therefore, when education is added to the physical and used as physical education, the process of education moves along with physical activities.

Respiratory system is very essential to sports activities. Shortness of breath is major limitation in most athletes, but in about a third muscle fatigue is an even greater problem. Although exercise does not improve lung function, training helps many athletes with lung diseases by strengthening lung muscles thus improving endurance and reducing breathlessness. Proper warm up and cool down may prevent or reduce the incidence of injuries and induced asthma. The main function of the respiratory system is gaseous exchange. Fast moving exercise causes your heart and breathing rates to increase, delivering fresh oxygen to your blood stream and energy to muscles. Your lung capacity can be increased through regular aerobic workouts, but only to modest amount. Force Vital capacity is closely related with motor qualities especially endurance. Endurance is one of the elements of physical fitness and it is determined first and foremost by the functional efficiency of the cardio-vascular metabolic and nervous systems as well as the level of co-orientation of the activities of the systems of the body.

Force Vital capacity is very essential in the games like Kho-Kho & Handball where the players have to perform with endurance and strength endurance for a longer period with breathing mechanism. The players of such games need to have larger lung volume to supply sufficient amount of oxygen to working muscle groups for effective performance. Similarly, the proportion of body mass index is also very essential in the above-mentioned games. Keeping these aspects ahead the present study aims to find out the Forced vital capacity among the college level Kho-Kho & Handball players of Madhugiri taluk. The researcher ventured to undertake this study as there was no evidence of any study made to show the Forced Vital capacity of college level Kho-Kho & handball Players of Madhugiri Taluk.

A handball and Kho-Kho game requires the specific fitness with reference to vital capacity, strength, speed, flexibility and co-ordination. Fitness training equips the sports person to face the physical and physiological challenges that come his way in his competitive sports career. Specific physiological and physical fitness characteristics enable the player to perform the unusual movements required by the concerned sport.

Physiological and physical fitness characteristics measurement plays an important role on the successful handball and Kho-Kho performances. These parameters further help to predict talents and finance on the potentially of best athletes for each sport. A good athlete is like a machine

he needs good fuel constantly in order to maintain top performance. A healthy mind rests only in healthy body. One can be mentally sound only when his body is physically fit. Fitness is for everybody and not just for youth, this makes fitness everybody's business. It is a part of education but it is also a part of life everybody who wants to be fit needs must do exercise. The basic problem is that the human body is designed and constructed for movement and vigorous, not for rest and it functions more effectively. When it is active, most people taken better care of their automobile than they do of their own body

History of Kho-Kho Game

One of the major attributes of hajj successful animal life is "Active Chase" which is a cardinal principle of the Indian game known as Kho-Kho, synonymous with the phrase "Game of Chase." It won't be incorrect or erroneous to state that Kho-Kho was a recognized sport in ancient times even earlier than the oldest mythological writings of the classics, "Mahabharata." The game of chase was then also a legend as it is used in literary phraseology as "putting Kho to someone's active chase meaning putting an effective block and stopping the progress." The present appearance of the game was an adoption about the time of World War I in 1914, but lacked exacting rules and regulations that govern the modern games. There were neither any dimensions to the playground nor the poles which demarcate the central line. Time factor was also missing.

History of Handball Game

The history of handball game can be traced back to ancient civilizations, where various forms of handball-like games were played. However, the modern version of handball, as we know it today, has its roots in Europe and has evolved over the years International Governing Body. The International Handball Federation (IHF) was founded in 1946 to govern and promote the sport on a global level. The IHF is responsible for organizing international competitions, setting rules, and overseeing the development of handball worldwide. Atan *et al* (2012) [3] conducted a study on 250 male athletes and other sportsmen in 15-16 age groups. Their respiratory functions such as vital capacity (VC), forced vital capacity (FVC) and maximum voluntary ventilation (MVV) values were measured. It was found that, the respiratory functions of individuals who do exercise were higher compared to those who do not. There was difference of respiratory functions between different sports branches. So they concluded that sport branch influences the respiratory capacity. Daipuria (2015) [7] conducted a study to compare the selected physiological variables among Hockey, Handball and Volleyball players. He selected 60 athletes belonging to 18-22 years of age from Gwalior. Variables such as Force vital capacity (FVC), Peak expiratory flow rate (PEFR) and resting pulse rate (RPR) were tested. One way ANOVA was employed to compare the selected physiological variables among selected players. It was found that all the selected games and sports players were having different PEFR.

Rationale of the Study

The major purpose of this research is "Study on Force Vital Capacity of Inter-Collegiate Handball & Kho-Kho players of Madhugiri Taluk". The study is conducted on selected Degree college Handball & kho-kho players of Madhugiri Taluk. The study aims to find out the Force vital capacity level among the Degree college Handball & kho-kho players. The study also

makes the comparisons on Force vital capacity among the Handball (20) & kho-kho (20) players of Madhugiri Taluk a wide age range of children (21-23 years).

Also, present study attempts to make the suggestions and recommendations to the Department of Public Instructions and Department of Youth and Sports Affairs, Karnataka for developing the Force vital capacity level through scientific method of training among Handball & Kho-Kho players. Further the study makes recommendations and gives suggestions to improve the basic infrastructure facilities at college level for the promotion and development of Handball & Kho-Kho game in Madhugiri taluk.

Objectives of the Study

- To find out the Force vital capacity level among selected Inter-Collegiate level Handball & Kho-Kho players of Madhugiri Taluk.
- To Compare the Force vital capacity among college level Handball & Kho-Kho players.

Hypotheses of the Study

- Based on different research findings, professional's opinion and researcher's own understanding of the problem, following hypotheses were formulated:
- It was hypothesized that there would be a better Force vital capacity among Handball players Compared to Kho-Kho players of Madhugiri Taluk.

Methodology

The purpose of this study was to compare the Force vital capacity of Inter-Collegiate Men Handball & Kho – Kho Players of Madhugiri Taluk, aged 21 to 23 years old. To achieve the purpose of the study, data was collected from forty players, twenty players from each game, who have represented their respective Inter-Collegiate Men Handball & Kho – Kho game. Subjects were randomly selected. The subjects ranged in age from 21 to 23 years. This study is limited to selected Colleges of Madhugiri Taluk. The study is limited to measurement of Force vital capacity among Inter-Collegiate Handball & Kho-Kho players.

Selection of Tests

To measure the selected variables the respective tests are administered and represented in the table 1

Table 1: Variable and Tests

S.N	Variables	Tests
1.	Forced Vital Capacity	Spirometry

The Results and Findings of Study

The obtained data was analysed by applying statistical mean, it would be tabulated and analysed. Represented data on tabular form by using different types of tables interpretations of data were presented in the following by using percentage and direct interpretation with the assistance of table wherever necessary.

Table 2: Showing the forced vital capacity of Handball and Kho-Kho players of Mean and standard Deviation.

	Kho Kho Players	Handball Players
Mean	4.8	4.253
S.D	0.6329	0.7635

The above table -2 clearly shows that forced vital capacity of Handball and Kho-Kho Players at the mean and standard deviation and 't'test values as are follows, Kho Kho Players mean 4.8 and standard deviation 0.6329, as well as Handball Players mean is 4.253 and standard deviation is 0.7635

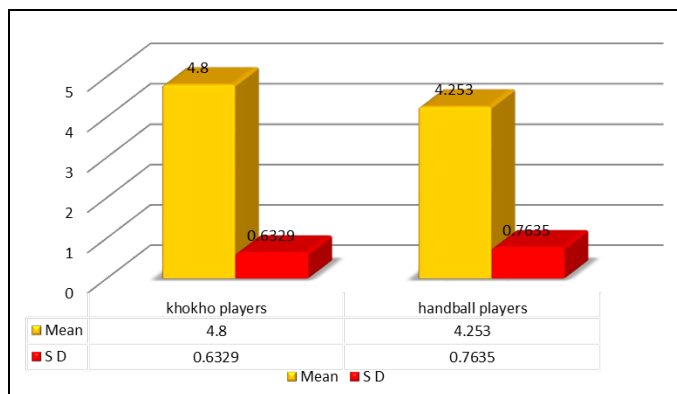


Fig 1: Mean value and S D of forced vital capacity between handball players and kho-kho players.

Figure No: 01 It is evident that on an average Kho Kho players have good lung capacity in comparison over Handball players. Also observed that Kho-Kho players have low standard deviation than handball players.

Table 3: Showing the forced vital capacity of Handball and Kho-Kho players of representing the T-test Results.

T-statistic	T-critical	P-value
2.611	2.093	0.017

The above table -3 clearly shows that Forced vital capacity of Handball And Kho-Kho Players the obtained the 't' table value is 2.611, the obtained the 't' critical value is 2.093 the obtained the 'P' value is 0.017.

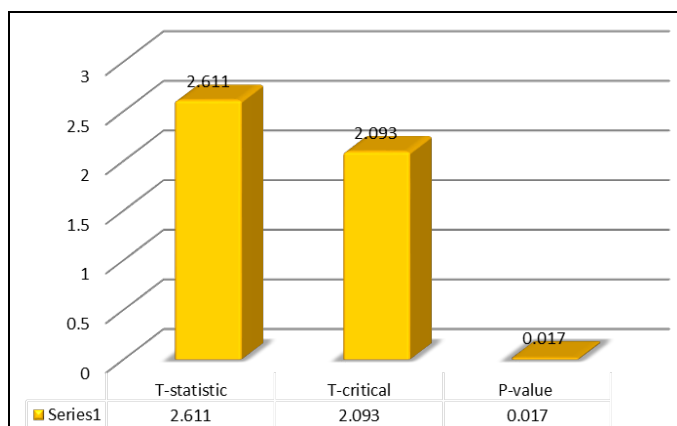


Fig 2: Forced vital capacity

Figure No :02 It is evident that the p-value is less than 0.05 level of significance, hence we reject null hypothesis and conclude that there is significant difference between the lung capacity of Kho-Kho players and Handball players

Table 4: Showing the forced vital capacity of Handball and Kho-Kho players of representing the Correlation Analysis Results.

	Kho-Kho Players	Handball Players
Kho-Kho Players	1	0.1097
Handball Players	0.1097	1

The above table -4 clearly shows that forced vital capacity of Handball and Kho-Kho Players. The value obtained from correlation between Kho-Kho and Handball players is 0.1097.

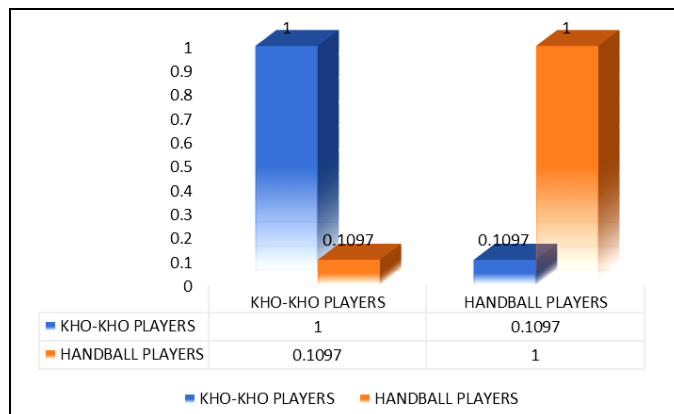


Fig 3: Forced vital capacity

Figure No:3 The above chart It is observe that there is weak positive correlation between lung capacity of Kho-Kho players and Handball players.

The forced vital capacity of both Handball and Kho-Kho Players, according to chart Handball players have more Forced vital capacity then the Kho-Kho Players

Conclusion and Results

With the limitation of the present study and on the basic of findings, the following conclusions may be made.

The regular and systematic physical activities and proper training would increase the Force vital capacity of an individual, and this would vary form one sport to the other, as each sports demands different type of exercises and physical activities. This reveals lung capacity has a direct bearing on activity status.

Conclusions

- i). Madhugiri Handball & Kho-Kho players fall under 'Normal' category according to standard norms of cooper normative data. Thus, it can be concluded that average values of Intercollegiate Men Handball & Kho-Kho players are 4.3 which fall under 'Normal' category according to standard norms of cooper normative data. In other words, the Handball & Kho-Kho players have efficiency to perform under fatigue conditions in the game.
- ii). The mean value 4.8 of 20 Kho-Kho players fall under 'Normal' category according to standard norms of cooper normative data. Handball 20 players mean value 4.25 fall under 'Normal' category according to standard norms of cooper normative data. Thus, it can be concluded that average values of Kho-Kho players have better Force vital capacity then Handball players.
- iii). There is a significant difference on force vital capacity of Kho-Kho players compared to Handball players.

Recommendation

In the light of findings and conclusion drawn the following recommendation are made.

- i). While designing the training programme for players the lung capacity of the players must be considered.
- ii). The selection of players for various sports can be done on the basis of their lung capacities.
- iii). Suitable training programmes may be chalked out for the improvement of lung capacity of the players.

- iv). Similar study can be taken up for different age groups.
- v). Similar study can be conducted by taking national sports man also.

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