



A comparative analysis of Physical Fitness variables between Kabaddi and kho-kho female players of Delhi

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DOI: <https://doi.org/10.55968/ijems.v13i04.282>

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The purpose of the study is comparing the study of Physical variables of speed, flexibility and agility among kho-kho and kabaddi players of Delhi. For the purpose of this study players of age group 16 to 18 years have been considered. A Total sample Size of 150 Players will be taken for the study. 75 players each of kho-kho and Kabaddi are considered for the sample size. The study has been carried out on the players of Delhi state. The components of physical fitness which were selected for the present study and were measured by 50 yard Dash, Sit and reach test, Shuttle Run. Our analysis shows that the kho-kho player have better speed, flexibility and agility than the kabaddi players. It has been found that the mean values of the Speed. Flexibility and agility for the kho-kho player is higher by almost 10% than the kabaddi players.

Keywords: kho-kho, Kabaddi, speed, flexibility and agility

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Luxmi, Research Scholar, Department of Physical Education, Choudhary Ranbir Singh University Jind Haryana India, Jind, Haryana, India. Email: luxmi.sharma2012@gmail.com	L, S. A comparative analysis of Physical Fitness variables between Kabaddi and kho-kho female players of Delhi. IJEMS. 2024;2024(04):1-7. Available From https://ijems.net/index.php/ijem/article/view/282	

Manuscript Received 2024-03-01	Review Round 1 2024-04-03	Review Round 2 2024-05-01	Review Round 3 2024-06-06	Accepted 2024-07-03
Conflict of Interest Nil	Funding Nil	Ethical Approval Yes	Plagiarism X-checker 11	Note Nil



Introduction

Physical fitness is the ability to last, to bear up and to preserve under difficult circumstances where an unfit person would give up. It is opposite to being fatigued from the ordinary efforts to lacking the energy, to enter zestfully into life activity and to be exhausted from unexpected demanding physical exertion*."

Physical fitness is the sum of total five motor abilities namely strength, speed, endurance, flexibility and co-operative abilities. These five motor abilities and their complete forms are the basic prerequisites for human motor actions. Therefore the sports performance in all depends upon these abilities. The improvement and maintenance of physical fitness is perhaps the most important aim of sports training. Physical fitness is the capacity to perform physical activity, and makes reference to a full range of physiological and psychological qualities. The different types of games and sports needed different type of training and skill but the physical fitness and conditioning almost the same. Some requires more strength some requires more endurance and some other requires speed but have in gymnastic required flexibility more. Each sport requires a different type and level of physical fitness and as a result a different type of fitness training or conditioning is required for different sports. Some sports like distance running require a very high level of endurance but a low level of other motor abilities.

The performance of a sportsman in any game or event also depends on muscular strength, agility, power, speed and cardiovascular endurance. Along with these physical variables, physiological and psychological components also play an important role in the execution of the performance. Best suited activity and new training methods achieve excellence. The aim of the present study was to determine the differences in selected physical fitness characteristics between the kho-kho and Kabaddi players of Delhi.

The health-Related components of physical fitness are cardiovascular endurance, body composition, flexibility, and muscular strength and muscular endurance. Cardiovascular endurance is the ability of the heart, blood vessels, and respiratory system to work efficiently delivering oxygen to the muscles for an extended period of time. Walking, jogging,

Biking, rope jumping, aerobics, and swimming are examples. Body Composition is the proportion of body fat to lean body mass. Typically, activities that help to develop cardiovascular endurance also help to improve body composition. Flexibility is the range of motion through which a joint or sequence of joints can move. The length of muscles, tendons, and ligaments can be increased through stretching. Muscular strength and endurance – Muscular strength is the ability of muscles to exert force (contract). Skill related physical fitness components are agility, balance, coordination, speed, power and reaction time. Agility is the ability to make successive movements in different directions efficiently and rapidly.

Importance of the Fitness variables

Speed is ability to perform rapidly successive movements over a short period of time in a single direction, e.g; short distance sprint. Speed may be defined as "rapidity with which successive movements of the same kind are performed. According to Borrow and McGree' it is the capacity of the individual to perform successive movements of the same pattern at the fastest rate. Speed is used in sports for such muscle reactions that are characterized by maximally quick alteration of contraction and relaxation of muscles. It is also the ability to execute motor actions under given conditions in minimum possible time. Speed ability is highly movement specific. Like strength and endurance, speed is also a conditional ability but unlike those two conditional abilities (strength and endurance) speed depends to a considerable extent on the nervous system.

Flexibility is used to describe the mobility of a single limb, joint or muscle. This, on the other hand, is crucial in your ability to move your body both efficiently and safely. Flexibility also utilizes every single component of your body and varies from person to person and joint to joint. This means that your every joint, tendon, muscle and ligament have their own characteristics and mechanical properties. Therefore, flexibility development is also determined by how you perform your regular physical activities as well as what kind of stretching you do. After all, your goal is to optimize the range of motion (ROM) you need in your sport while maintaining joint stability. Flexibility is also an important building block for other fitness components that are required for an active lifestyle

Or even an athletic career. You see, your strength, power, speed and even your endurance require a sufficient range of motion to perform in the best way possible. With this in mind, it's no surprise that flexibility has a strong connection to athletic performance. The simple fact is that if a muscle is tight and inflexible, you won't be able to utilize its full strength potential. And, since the body works as a combination of muscles, one weak muscle can ruin the whole kinetic chain (movement through multiple body segments) during your performance. Therefore, athletes must maintain a sufficient range of motion required in their sport to ensure athletic progression without the risk of injury.

Agility is the ability to change the body's position, and requires a combination of balance, coordination, speed, reflexes, and strength. In sports, Agility is described in terms of response to an opposing player, moving target, as seen in field sports and racket sports. In short, Agility is the ability to change body position or direction of the body rapidly. This ability is measured with running tests that require the subject to turn or start and stop. Agility is also influenced by balance, coordination, position of centre of gravity, running speed and skill. Agility can be improved by practicing specifically for a sport but also by improving the specific individual elements of speed, balance, power and coordination. Agility helps in improvement of the flexibility and also allows us to maintain proper balance and posture while making steep moves thereby avoiding strain and injuries. It improves the physical and mental coordination thereby leading to an improved body coordination and reaction time. It also helps in the shortening the recovery time during the game.

Objective of the study

The purpose of the study is comparing the study of Physical Fitness variables of Speed, Flexibility and agility among kho-kho and kabaddi female players of Delhi.

Review of the Existing Literature

The research scholar has also attempted to review the literature available with the libraries related to physical education, sports and education from different universities of Haryana. Also, research work done prior to this has also been referred from the online repository of Shodh Ganga to get more insights into the topic. Some of the related references have been provided in this section.

Kala (1999) conducted a study on Kabaddi and Kho-Kho players of Kurukshetra University. He compared physical fitness, physiological and coordinative ability variables of these games players. The physical fitness variables such as agility, speed, power and endurance strength of Kabaddi players were found significantly better in the strength components than the Kho-Kho players. However, Kho-Kho players were significantly better than the Kabaddi players in physical fitness variables such as agility and speed, power and endurance. Kho-Kho players were found better in rhythmic ability in the coordinative ability but in other coordinative ability there is no significant difference in the Kabaddi and Kho-Kho players such as Balance, flexibility, differentiation ability and lateral jumping ability. Kabaddi players were significantly better than the Kho-Kho players in physiological variables such as PEF (Peak Expiratory Flow Rate) but Kho-Kho player were significantly better than the kabaddi players in pulse rate.

Rameez Ahmad Bhat, Ashiq Hussain Malla and Dr. Manoj Kumar Pathak (2019) published a paper titled "Comparative study of physical fitness between Kabaddi and Kho-Kho players of district Ganderbal" in International Journal of Physical Education, Sports and Health (P-ISSN: 2394-1685 E-ISSN: 2394-1693). The findings of the present study directs that the variable strength is significant ($p < 0.05$) among Kabaddi and Kho-Kho players and it was also found that The data collected on six variables such as strength, muscular strength, coordination ability, power, speed and cardiovascular are no significant ($p > 0.05$) among Kabaddi and Kho-Kho players. Further on conclusion it was found that the Kabaddi and Kho-Kho players were no significantly differ on the variable such as strength, muscular strength, co- ordination ability, power, speed and cardiovascular. However it was found that Kabaddi and Kho-Kho players show no significant difference on the variables such as strength, muscular strength, co- ordination ability, power, speed and cardiovascular.

Mahendra Kumar Singh and Devender Dube published a paper titled " A COMPARATIVE STUDY OF SELECTED PHYSICAL FITNESS VARIABLES BETWEEN KABADDI AND KHO-KHO MALE PLAYERS " in International Journal of Physical Education & Sports (IJPES). Study concluded that significant difference found between the means of selected physical fitness variables such as speed, agility,

Endurance and flexibility between kabaddi and kho-kho male players.

Dr Manju (2021) published a paper titled "A comparative study of selected physical fitness variable between Kabaddi and Kho-Kho inter university female players of Bijnor" in International Journal of Yogic, Human Movement and Sports Sciences. The purpose of the study was to compare the selected physical fitness variables between Kabaddi and Kho-Kho players. A total of 60 female subjects (30 each in Kabaddi and Kho-Kho) age ranges from 18 to 26 were selected purposively for the study from different colleges of Bijnor (up) who have participated in inter university tournaments. The data were collected for different physical fitness variable by administering AAHPER youth fitness test i.e. arm and shoulder strength in terms of flex elbow hang, abdominal strength and endurance in terms of number of completed bent knee sit ups in one minute, agility in terms of nearest tenth of seconds using shuttle run test, power in terms of feet & inches using standing broad jump test, speed in terms of nearest tenth of second using 50 yard dash run, cardiorespiratory endurance in terms of nearest tenth of second using 600 yard run/ walk. For the analysis of data, independent t-test has been employed. The level of significance was set at 0.05. The significant differences was not found between Kabaddi and Kho-Kho players on all variables abdominal strength and endurance, agility, power, speed and cardio-respiratory endurance

Sunil Kumar , *Sahajad Singh,Rajendra Shalikram Gore(2011)** published paper titled "A COMPARATIVE STUDY ON SELECTED PSYCHOPHYSICAL FITNESS COMPONENTS OF KABADDI AND KHO-KHO PLAYERS OF DELHI SCHOOLS" in international Journal of Research in Social Sciences And Humanities. The main purpose and objective of the present study was to compare the Kabaddi and Kho-Kho players on the selected physical and mental abilities. The purpose of the study one hundred players- 50 from the game of Kabaddi and 50 from the Kho-Kho has been selected on purposively and randomly basis, who has won medal/ position in Delhi Scholl Zonal, Inter-Zonal and participated in National School Games during the 2009 and 2010. All the subjects were regularly practicing and competing in their respective sports competition.

Methodology

Selection of Variables

For the purpose of this study Kho-kho and Kabaddi players of age group 16 to 18 years have been considered for the study. A Total sample Size of 150 Players have been considered for the study. 75 players each of Kho-kho and Kabaddi are considered for the sample size. The study will be carried out on the players of Delhi state. For Study the fitness variable considered is Speed, Flexibility and Agility

S.No.	Selected Variable	Measurement Method	Game	Sample Size
1	Speed	50 Yard Dash	Kabaddi	75
			Kho-Kho	75
2	Flexibility	Sit and reach	Kabaddi	75
			Kho-Kho	75
3	Agility	Shuttle Run	Kabaddi	75
			Kho-Kho	75

Table-1

Selection of Subjects

The subjects have been selected from academies and teams across colleges and schools.

Measurement criterion:

The components of physical fitness (Speed, flexibility, Agility) selected for the present study and have been measured using the below methods. The unit of measurement are also provided in the table below:

S.N.	Parameter	Measurement Method	Instrument	Unit of Measurement
Physical Parameters				
1	Speed	50 Yard Dash	Measurement Tape, Stop Watch	Seconds
2	Flexibility	Sit and reach	Measuring Tape	Inch
3	Agility	Shuttle Run	Measurement tape, stopwatch, non-slip surface.	Seconds

Statistical Analysis

Mean SD and independent t-test have been used to analyse the players data collected.

Speed:

The time taken by the players to complete the 50 yard dash has been considered.

Group	Variable	Test type	Sample Size	Mean(50 yard Dash) time (in Sec)	Standard Deviation	Obtained t ratio
Kabaddi	Speed	50 Yard Dash	75	8.5389	1.1235	9.5283
Kho-Kho	Speed	50 Yard Dash	75	7.2040	0.4581	
Kabaddi	Flexibility	Sit and reach test	75	43.83	3.07	3.8959
Kho-Kho	Flexibility	Sit and reach test	75	45.72	3.78	
Kabaddi	Agility	Shuttle Test	75	9.952	0.4198	17.3256
Kho-Kho	Agility	Shuttle Test	75	8.964	0.2597	

The two-tailed P value is less than 0.0001
By conventional criteria, this difference is considered to be extremely statistically significant.

The difference in mean of Kabaddi and Kho- Kho for Speed is 1.3349 which is more than 10%

For the Flexibility the two-tailed P value equals 0.0002. This difference is considered to be extremely statistically significant.

The mean of kabaddi minus Kho-Kho equals for Flexibility -2.09

The two-tailed P value is less than 0.0001 for agility. By conventional criteria, this difference is considered to be extremely statistically significant.

The mean of kabaddi minus Kho-Kho equals 0.9876 for agility

Conclusion

It is evident from the results that Kho-Kho players have better physical fitness than the Kabaddi players in terms of the Speed, flexibility and endurance. This relates to the alertness of the players required in the game. While Kho-kho and kabaddi requires good amount of physical fitness, but it has been observed that the nature of Kho-kho requires more flexibility and speed among the players.

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