



Selected Physical and Physiological Components of Inter Collegiate KABADDI and KHO-KHO Players – A Comparative Study

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KEYWORDS :

1. INTRODUCTION:

Physical fitness is the fundamental necessity for any sporting activity. Motor qualities such as speed, strength, endurance, and flexibility along with physical fitness are essential for excellence in sports. Sports trainers and coaches are emphasizing on improving the physical fitness and motor qualities of the players, which is also known as conditioning. A good conditioning program is the backbone of the over-all training of the sportsperson. Physical fitness is categorized into general and specific fitness. General fitness refers to the motor qualities required in any sportsperson irrespective of the sports discipline, such as speed, strength, flexibility, endurance and co-ordination. Each and every sport demands certain motor qualities above the ordinary. Specific fitness is the intensified level of motor qualities achieved by the sportsperson that is required by the specific sport.

In **Kabaddi**, the specific fitness is relevant with reference to strength, speed and co-ordination. Fitness training equips the sportsperson to face the physiological and psychological challenges that come his way in his competitive sports career. Specific fitness enables the player to perform the unusual movements required by the concerned sport, which the non-sportsman does not perform in his everyday routine. Specific fitness however depends a lot on general fitness and this is the reason why the sportsperson has to give equal importance to both general as well as specific fitness, to succeed. Since strength and endurance are the primary requisites of sportsperson, the training program should commence with physical exercises and activity. Kabaddi being a team game, every player has a specific role to play in defense and offense. The motor qualities differ from player to player and specific abilities of players occupying different positions or roles in the team game also differ. For example, the specific fitness of a raider is slightly different from that of the main defense player. This calls for the designing of individual training programmes for each player, as far as possible, especially when they reach a certain standard of performance.

Physical Fitness is generally achieved through exercise, correct nutrition and enough rest. It is an important part of life. Different games provided to do the body activities, differently. Kabaddi and Kho-Kho players are equally conducive to developing skills amongst players. The present study will have the significance of self-assessment of physical fitness and physiological aspects of Kabaddi and Kho-Kho players. The proposed study may seek the significance through the comparison of the factors between the Kabaddi and Kho-Kho players. Therefore, coaches, trainers and physical education teachers for Kabaddi and Kho-Kho players attempt to develop physical and physiological fitness of sportsmen.

2. REVIEW OF RELATED LITERATURE:

Dhonge (2012) conducted study on the topic of "Co-relation of Kho-Kho Playing Ability with Health Fitness and Motor Fitness of Boys". The purpose of the study was co-relation of playing kho-kho ability of the player of kho-kho with motor fitness and health related fitness. In the present study, researcher had studied and measured the health related fitness and motor fitness of the Adolescents kho-kho players. For this study and the measurements of Adolescents, the researcher had regularly observed Adolescents play kho-kho game fixed period. The objectives of the study were to find out the relationship of motor fitness with playing ability of kho-kho player and to study the co-relation of playing ability with health related fitness. Total 243 kho-kho

players aging between 18 to 25 years groups who have participated as kho-kho players in inter-college and inter-university tournament of four districts namely Latur, Nanded, Parbhani and Hingoli of Swami Ramand Teerth Marathwada University, Nanded.

The study was based on Survey Method. The piece of research was designed simply on the basis of the principles of developmental Research. A test battery of co-relation of kho-kho playing ability with motor fitness was applied to collect the data and the co-relation of the same was established scientifically. After standardization of the kho-kho playing ability of the same was determined by conducting the various tests of fitness and playing ability by which Co-relation kho-kho players were identified with the help of the standardized test. The researcher has applied the survey and comparative method. Similarly AAPERD youth motor fitness and health related fitness test battery was used. There were two rating scale tests used to measure the playing ability, offensive and defensive as a source of data.

Body Mass Index (Skin fold caliper), Body Fat (Skin fold caliper), Balance (Static Balance test), Cardio-respiratory Endurance (600 Mtrs. Run), Speed (100 Mtrs. Run), Explosive Power (Standing Broad Jump, Arm Strength(Pull-ups), Abdominal Strength (Sit –ups), Agility (Shuttle Run), Playing Ability test (Rating Scale) were used to test the motor fitness and health fitness test .

The Mean, Standard Deviation, Factorial ANOVA and Spearman co-relations co-efficient test were used to analyse the data. It was concluded that: 1) Playing ability and Fat, Cardio-vascular ability, balance have close relationship in kho-kho players. 2) The players of kho-kho game have close relationship with playing ability with explosive strength, abdominal strength, arm strength. 3) The players of kho-kho game have more agility. 4) There is no relationship between playing ability and fat.

Nallella & Kumar (2012) conducted a study on "Physical Fitness And its Significance on Physiological Aspects of Football Players in Kakatiya University". The study was formulated based on the simple random sampling. The samples were collected from the 50 Foot ball players in the age group of 20 – 25 years from kakatiya university in the age group of 18-21 years were considered. The data were collected during Inter college University Tournaments. The subjects have undergone physical fitness activities for 45 days. The pre- test was taken, and then the post test was administered after the systematic training of physical fitness activities like speed, agility, explosive power and endurance on physiological aspects. By applying the 't' test the result showed that physical fitness have yielded significant differences on the physiological aspects of foot ball players have scientifically proved better that the Kakatiya university foot ball players have major role to prove their physical fitness in the performance of the game the physical fitness variables.

Kumar et al. (2011) on their study were to compare the kabaddi and kho-kho players on the selected physical and mental abilities. The subjects were 50 from the game of Kabaddi and 50 from the Kho-Kho were selected on purposively and randomly basis, who have won medal position in Delhi Scholl Zonal, Inter-Zonal and participated in National School Games during the 2009 and 2010. In their respective sports competition on selected physical and psychological abilities such as Body Mass Index (BMI), Speed, Standing Broad Jump, Sit and

Reach, Sit-Ups, 12minutes Run/walk, Psychomotor ability, Concentration ability and Sports Competition Anxiety. The results show that the significant difference was found in the speed ability of kho-kho players group had better speed in competition to the kabaddi players group. The significant difference was found in the standing Broad Jump in relation to the kabaddi and kho-kho players. The kabaddi players' group had high explosive strength, showing greater jumping ability than the kho-kho players group.

Ravikumar & Srinivasa (2012) conducted a study "Comparative Analysis of Selected anthropometric And Physical Fitness Variables among Football Players In Relation To Position Play on 45 univarsity football players of Banglore University, Tumkur University and University of Mysore who have represented at South Zone Inter-University Football Championship, 2011-12. Anthropometric measurements such height, weight, arm length, leg length, calf girth and thigh girth and physical fitness such as speed, agility, flexibility, endurance were tested. To determine the significance of the differences between the group means in different variables for the defenders, mid-fielders and attackers of football players, the one-way analysis of variance (F Ratio) was used. The significant was set at 0.05 level of confidence. The Results were found that defenders, mid-fielders and attackers had significant differences in anthropometric measurements such as calf girth and physical fitness i.e. agility among defenders, mid-fielders and attackers of football players. The study also indicated that defenders, mid-fielders and attackers had no significant differences in anthropometric measurements such as height, weight, arm length, leg length and physical fitness variables such as speed, flexibility and endurance of football players. The midfielders had better thigh girth than attackers and defenders. The attackers had superior agility to midfielders and defenders.

Bhomik (1997) conducted a comparative study on selected physiological parameters between Soccer and Kabaddi players. The purpose of the study was to compare and contrast the selected physiological parameters between soccer and Kabaddi players. Total 30 players from the Kabaddi and soccer (15 from each) were selected randomly and only from the Intercollegiate terms of Amravati University. The physiological parameters selected as criterion were blood pressure, vital capacity and resting pulse rate. The "t" test was computed to find out the significance differences between the mean. It was concluded that Kabaddi players were significantly superior in vital capacity whereas soccer players were significantly superior in resting pulse rate in comparison to their counterpart but in case of blood pressure non-significance differences were found between the two groups.

Tiwari & Singh (2012) in their study were to compare the physical and physiological variables among the inter district and Inter State level of Basketball players. Sixty (60) male basketball players (30 inter district and 30 inter state) were randomly selected from Uttar Pradesh as a subject. The age of the subject ranged from 17 – 28 years. It was hypothesized that there would be a significant difference in the physical fitness variables and physiological variables among the Indian basketball players of different levels of competitions. The physical variables chosen were speed, endurance and power sargent jump. The physiological variables were resting heart rate and vital capacity. The data collected on the different levels of basketball players were analyzed by independent "t" test. The level of significance for testing the hypothesis was set at 0.05 level of confidence. It was found that the inter state level players were better than inter district players with respect to speed, power and endurance. In terms of physiological variables namely RHR and vital capacity, both the group did not differ significantly.

Biddle & Mohan (2012) conducted a study on the topic of "A Comparative Study of Speed among Kabaddi and Kho- kho Players of Osmania University." The study aimed to bring out the level of speed among male kabaddi and male kho-kho players of Hyderabad. The sample for the study was male 20 kabaddi and male 20 kho-kho players from various colleges of Osmania University. The subjects of the study were between the age group of 19 years to 22 years. The data were collected separately from kabaddi and kho-kho players. The subjects were tested in 50 mtrs. for speed.

The "t" test was computed to find out the significant difference between the mean of speed of both the groups. It was concluded that

due to the kho kho players having good speed compared to kabaddi players.

Devaraju & Kalidasan (2012) conducted a study which was to predict the kabaddi playing ability from selected anthropometrical and physical variables among college level players. 144 male inter college kabaddi players were randomly selected from various colleges in Tamilnadu state and their age ranged between 18 and 28 years. The subjects had past playing experience of at least 3 years in kabaddi. A series of anthropometrical measurements was carried out on each participant. These included standing height, body weight, arm length, leg length. Physical fitness components of 50m dash, flexibility, leg explosive strength, muscular power and muscular endurance were taken. The playing ability taken as the performance factor was subjectively assessed by three qualified kabaddi coaches. All testing was done 2 days before inter-college competition. Mean and standard deviations were calculated for each of the selected variables. The inter-relationship among the selected anthropometrical, Physical variable and kabaddi playing ability were computed by using person product-moment correlation coefficients. The result revealed that the inter-relationship exists significantly between the anthropometrical, physical and performance variables among male inter-college kabaddi players. The result also revealed that speed, agility, weight and flexibility become the common characteristics which can predict the playing ability in kabaddi players.

3. METHODOLOGY

In this chapter the procedure adapted for the selection of subjects, selection of variable, criteria measures, reliability of data, administration of test and collection of data and the statistical techniques used for analyzing the data have been described.

We compare the Physical and Physiological Components between Kabaddi and Kho-Kho players who have participated in various colleges affiliated to V.N.S.G. University Surat (Gujarat) Inter Collegiate Kabaddi and Kho-Kho Tournament. The concept frame work within which the study was conducted has been undertaken through the following steps.

The test has been conducted on the players amidst the age group of 19 to 28 years playing Kabaddi and Kho-Kho. The sample size of 30 was selected for both the games. The results are calculated using t-test.

Tools and Techniques of Research:

| Physical Components: | Test items | Unit of Measurements |
|------------------------------|-----------------------|----------------------|
| a. Speed: | 50mt.Sprint | Seconds |
| b. Explosive Strength: | Standing Broad Jump | Centimeter |
| c. Cardiovascular Endurance: | 12 min. Run/Walk Test | Seconds |
| d. Coordinative Ability: | 4x10 mt Shuttle Run | Seconds |
| e. Flexibility: | Sit and Reach Test | Centimeter |

| Physical Components: | Test items | Unit of Measurements |
|-----------------------------|----------------------|----------------------|
| a. Systolic blood pressure | Oscillometric method | mm of Hg |
| b. Diastolic blood pressure | Oscillometric method | mm of Hg |
| c. Heart rate | Oscillometric method | Beats/min. |
| d. Vital Capacity | Spiro meters | cm ³ |

4. RESULTS AND ANALYSIS

| Group Statistics | | | | | |
|------------------|---------|----|-------------|----------------|-----------------|
| Test items | GROUP | N | Mean | Std. Deviation | Std. Error Mean |
| SPEED | Kho-kho | 30 | 6.833666667 | 0.800790486 | 0.146203671 |
| | Kabbadi | 30 | 7.663666667 | 0.511828927 | 0.09344675 |
| SBJ | Kho-kho | 30 | 229.5333333 | 14.81316594 | 2.70450171 |
| | Kabbadi | 30 | 214.2666667 | 17.26853494 | 3.152788707 |
| ENDU | Kho-kho | 30 | 2615.833333 | 100.5166253 | 18.35174102 |
| | Kabbadi | 30 | 2179.333333 | 330.7455875 | 60.38560636 |
| SR | Kho-kho | 30 | 9.337666667 | 2.268349975 | 0.41414215 |
| | Kabbadi | 30 | 9.719666667 | 0.716348419 | 0.130786729 |
| FLEX | Kho-kho | 30 | 11.23 | 3.914002273 | 0.714595778 |
| | Kabbadi | 30 | 13.56 | 6.267518895 | 1.14428716 |
| SYBP | Kho-kho | 30 | 117.9333333 | 3.061815253 | 0.559008427 |
| | Kabbadi | 30 | 121.3 | 5.038814858 | 0.91995752 |
| DYBP | Kho-kho | 30 | 77.9 | 2.904811704 | 0.530343632 |
| | Kabbadi | 30 | 77.2 | 6.21677375 | 1.135022406 |
| HR | Kho-kho | 30 | 56.26666667 | 3.443467912 | 0.628688351 |
| | Kabbadi | 30 | 67.06666667 | 5.765135004 | 1.05256483 |
| VC | Kho-kho | 30 | 3551.666667 | 465.2554607 | 84.94363694 |
| | Kabbadi | 30 | 5181.666667 | 427.398573 | 78.0319465 |

The test has been conducted on the players amidst the age group of 19 to 28 years playing Kabaddi and Kho-Kho. The results of various components following the 't' test is as follows

- Speed of kho-kho player is greater than speed of Kabaddi player
- Strength of kho-kho player is more than strength of Kabaddi player
- Endurance of kho-kho player is more than that of Kabaddi player
- There is no significant difference between Coordinative Ability of kho-kho player and Kabaddi player
- There is no significant difference between Flexibility Sit and Reach of kho-kho player and Kabaddi player
- Systolic blood pressure of kho-kho player is less than that of Kabaddi player
- There is no significant difference between Diastolic blood pressure of kho-kho player and Kabaddi player
- Heart Rate of kho-kho player is less than Heart Rate of Kabaddi player
- Vital Capacity of kho-kho player is less than Vital Capacity of Kabaddi player.

4. CONCLUSIONS

We observed that with regards to speed, strength and endurance kho-kho players are better as compared to kabbadi players. So as co-ordination and flexibility is concerned there seems to be no significant difference in the two games. It is equally necessary for the players of both the games. However systolic blood pressure, vital capacity and heart rate of kho-kho players are less than that of kabbadi players.

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