



Physical and Anthropometric Characteristics of Kabaddi Players

KEYWORDS

Physical and anthropometrical Characteristics, Body Composition, Body Mass Index

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ABSTRACT *In India Kabaddi is considered as National Game. Much impetus has been putting only very recently to make it an international game. For this purpose academic research should be done. There is only a few research works in this filed. The present study was carried out through descriptive survey method within ex-post-facto research design. Seventy one men Kabaddi players of the teams of different Indian Universities were considered as the sample here. Data was collected from the Kabaddi players in course of Inter-University Kabaddi (Men) Tournament, held in the University of Kalyani during October 12-14, 2006. The height, weight, leg length, arm length, mid thigh girth, calf girth, body composition (i.e. body fat %, fat mass and lean body mass) and body mass index were considered as physical and anthropometric characteristics. These were measured in usual and popular method. Descriptive statistics of the physical and anthropometric characteristics of Kabaddi players was calculated by using SPSS 10.1 software.*

Kabaddi a Folk Game

Kabaddi is one of the most popular of folk games in the world, mainly in India. Kabaddi is attacking and defending game played between two teams having seven players each. Kabaddi attained National status in the year 1918. The Amateur Kabaddi Federation of India (AKFI) was founded in 1973. The Governing body of Kabaddi in Asia is Asian Amateur Kabaddi Federation (AAKF) headed by Mr. Janardan Singh Gehlot. Parent body to regulate the game at international level is International Kabaddi Federation (IKF). Kabaddi was introduced and popularized in Japan in 1979. Federation Cup Kabaddi matches also commenced in the year 1981.

Importance of Research

As the game is gaining popularity in the world population, systematic studies are needed to select the player, to train up them, to manage their stress and to augment their individual and group performances.

Method

The present study was carried out through descriptive cross-sectional survey method within ex-post-facto research design. The details regarding the method of research design, sample, research instruments and tools, procedure of data collection and statistical technique are reported herewith.

Physical and Anthropometric

As physical and anthropometric characteristics – (i) height, (ii) weight, (iii) leg length, (iv) arm length, (v) mid thigh girth, (vi) calf girth, (vii) body composition (i.e. body fat %, fat mass and lean body mass) and (viii) body mass index were considered in the present study.

Sample

Kabaddi players of different university teams participated in the East Zone Inter-University Kabaddi (Men) Tournament, held during October, 12-14, 2006 which was organized by the University of Kalyani, Kalyani, Nadia. Total 24 teams participated to the tournament and total number of players were (24 × 12 =) 288. Due to scarcity of fund and research personnel, the present researcher could not include all of the 24 teams in his research. So, out of the total 24 teams 8 were selected randomly for the study. A list of 24 university Kabaddi teams was uploaded onto a computer, and then the computer was instructed to generate randomly a list of 8 uni-

versities out of 24. Then total number of players were (8 × 12 =) 96. These 96 players were the subjects of the study. Total 96 players were approached with the instruments and tools of the research. But, as all of the 12 players of a team were not selected to play a game so individual performance of 12 players of a team could not be assessed. The total number of players from where full set of data were possible to collect was 71.

Research Instruments

The following research tools were used in the present study for data collection. The tools were selected by applying yardsticks of relevance, appropriateness, reliability, validity and suitability. Brief descriptions of the tools are given herewith.

Instruments to Measure Physical Variables

A series of physical and anthropometrical measurement was carried out with the help of the instruments such as – (i) Height - Standing height measured by Stadiometre; (ii) Weight - Body weight measured by weighing machine; (iii) Length Measurements – Arm Length and Leg Length was measured by Steel Tape; (iv) Girth Measurements – Right Upper arm, Abdomen, Right Forearm, Mid Thigh, Calf was measured by Steel Tape; (v) Body Composition – Body Fat% was estimated with the help of girth measurements in the procedure as described by **McArdle, Katch and Katch (2006) [1]**, Fat Mass was calculated with the help of the following equation: $\text{Fat Mass} = (\text{Body Weight} \times \text{Body Fat } \%) / 100$, Lean Body Mass was estimated by the equation: $\text{Lean Body Mass} = \text{Body Weight} - \text{Fat Mass}$, the following equation was used for the estimation of Body Mass Index (BMI): $\text{BMI} = \text{Weight in kg} / (\text{Height in mt.})^2$

Result

Descriptive statistics of physical or anthropometric variables (viz., Thigh Girth in cm, Calf Girth in cm, Arm Length in cm, Leg Length in cm, Height in cm, Body Fat Percentage, Body Weight in kg, Fat Mass in kg, Lean Body Mass in kg and Body Mass Index in kg/m^2) are presented hereunder.

Table-1 shows the descriptive statistics of physical or anthropometric variables of the university level Kabaddi players. In case of thigh girth the minimum of the scores was 38.00 cm. and maximum of those was 61.00 cm. the mean and standard deviation of the said distribution were 52.20 cm. and 4.26

cm. respectively. In case of calf girth minimum of the scores was 30.00 cm. and maximum of scores was 49.00 cm. The mean and standard deviation of the said distribution were 34.64 cm. and 2.88 cm. respectively. Here the minimum of arm length scores was 51.00 and maximum of those was 63.00. The mean and standard deviation of the said distribution were 56.69 and 2.76 respectively. In case of the leg length minimum of the scores was 73.00 and maximum was 96.00. The mean and standard deviation of the said distribution were 84.10 and 4.88 respectively. It is observed that the minimum and maximum scores of height were 155.00 and 182.00 respectively. The mean and standard deviation of the said distribution were 169.45 and 6.39 respectively. In case of body fat percentage the minimum of scores was 6.90 and the maximum of scores was 25.10. The mean and standard deviation of those were 14.28 and 3.88 respectively. In case of body weight minimum of scores was 55.00 and the maximum of scores was 94.00. The mean and standard deviation of those were 67.46 and 8.31 respectively. In case of fat mass minimum of the scores was 3.8 and maximum of those was 21.84. The mean and standard deviation of the said distribution were 9.86 and 3.76 respectively. In case of lean body mass the minimum of the scores was 48.39 and the maximum of scores was 72.85. The mean and standard deviation of the said distribution were 57.60 and 5.40 respectively. In case of body mass index the minimum of the scores was 19.38 and maximum was 28.53. The mean and standard deviation of the said distribution were 23.45 and 2.13 respectively.

Table – 1: Descriptive Statistics of Physical or Anthropometric Variables of the University Level Kabaddi Players

Physical Variables	N	Minimum	Maximum	Mean	Std. Deviation
Thigh Girth (cm)	71	38.00	61.00	52.20	4.26
Calf Girth (cm)	71	30.00	49.00	34.64	2.88
Arm Length (cm)	71	51.00	63.00	56.69	2.76
Leg Length (cm)	71	73.00	96.00	84.10	4.88
Height (cm)	71	155.00	182.00	169.45	6.39
Body Fat Percentage	71	6.90	25.10	14.28	3.88
Body Weight (kg)	71	55.00	94.00	67.46	8.31
Fat Mass (kg)	71	3.80	21.84	9.86	3.76
Lean Body Mass (kg)	71	48.39	72.85	57.60	5.40
Body Mass Index (kg/m ²)	71	19.38	28.53	23.45	2.13

Discussion

Dey, Khanna and Batra (1993) [2] conducted a study on 25 national Kabaddi players (of mean age 27.91 years), who attended a national camp at the Sports Authority of India, Bangalore before the Beijing Asian Games in 1990. They have reported the mean of body fat % as 17.56, which was found to be higher than normal sedentary people. Their physique was found to be endomorphic – mesomorphic (3.8-5.2-1.7).

Khanna, et. al. (1996) [3] conducted a study to determine the physical and physiological profile of Kabaddi players and the physiological demands of playing a kabaddi match. Kabaddi players had the somatotype of 2.68-4.71-1.83, with absolute back strength of 175.0 kg. VO_2 max and O_2 debt were 3.59 (0.36) litre min⁻¹ [47.82 (3.68) ml kg⁻¹ min⁻¹] and 5.3 (1.85) litres (70 ml kg⁻¹) respectively. They concluded that the Kabaddi is an intermittent sport. The rest pause during the game is sufficient for recovery. During raiding the main source of energy is anaerobic.

Kumar, Singh, Gore and Dhotre (2011) [4] conducted a study. The main purpose and objective of the study was to compare the Kabaddi and Kho-Kho players on the selected physical and mental abilities. The findings were – (i) the Kabaddi players group had more BMI showing greater body mass than the Kho-Kho players group; (ii) in the speed ability (40m sprint test) the Kho-Kho players group had better speed in comparison to the Kabaddi players group; (iii) the Kabaddi players group had high explosive strength, showing greater jumping ability than the Kho-Kho players group; (iv) in the Sit and Reach test the Kho-Kho players group had better hips and legs flexibility in comparison to the Kabaddi players group; (v) in one minute Sit-Ups test of muscular strength endurance the Kabaddi players group had better muscular strength endurance of abdomen muscles group, showing greater muscular endurance ability than the Kho-Kho players group; (vi) in the 12 minutes Run/Walk test of cardiovascular endurance the Kho-Kho players group had better cardiovascular endurance, showing greater heart and lungs capacity than the Kabaddi players group; and (vii) in the psychomotor ability the Kho-Kho players group had better psychomotor ability or eye hand coordination, proving better mental and physical coordination ability than the Kabaddi players group.

Kabaddi is a game which combines the actions of wrestling, judo, rugby and gymnastics. The important body movements in this game involve catching, holding, locking and jumping, thus the possession of desirable anthropometric and physiological characteristics will have a greater advantage in executing a better performance in competition.

As per report of **Sodhi and Sidhu (1984) [5]** Kabaddi players was almost similar to judo players but heavier than footballers, hockey players and boxers. They also reported that the total body fat percentage of the Kabaddi players was higher than judokas, boxers, weightlifters, wrestlers (except the heavyweight category) and footballers. The researchers also found that the mean height and weight of the Kabaddi players were higher than those of the average Indian population.

The result of the present study was in corroborated with the findings of previous studies.

Conclusion

In selecting players for a Kabaddi team physical and anthropometrical characteristics as extracted in the study may be considered.

REFERENCE

- [1] McArdle, W.D., Katch, F.I. & Katch, V.L. (2006). Essentials of Exercise Physiology, Lippincott Williams & Wilkins. [2] Dey, S. K., Khanna, G. L. & Batra, M. (1993). Morphological and physiological studies on Indian national Kabaddi players. British Journal of Sports Medicine, 27:237-242 [3] Khanna, G. L., Majumdar, P., Malik, V., Vrinda, T. & Mandal, M. (1996). A study of physiological responses during match play in Indian national kabaddi players. British Journal of Sports Medicine, 30:232-235 [4] Kumar, S., Singh, S., Gore, R.S. & Dhotre, B. (2011). A comparative study on selected psycho-physical fitness components of kabaddi and kho-kho players of delhi schools. International Journal of Research in Social Sciences and Humanities (IJRSSH) 1(1) [5] Sodhi, H.S. & Sidhu, L.S. (1984). Physique and Selection of Sportsmen – A Kinanthropometric Study. Patiala, India: Punjab Publishing House.