



Anthropometric Characteristics of Kabaddi Players in Relation To Their Playing Positions

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ABSTRACT

The purpose of the study was to investigate the status and difference between the anthropometric characteristics of the kabaddi players in relation to their playing positions (Raiders, Coverers, Corner and All-rounders). Total 180 Kabaddi Players (45 each Raiders, Coverers, Corner and All-rounders) were selected from the Inter College Zonal Kabaddi Tournaments of the different universities of Haryana state (India) by using Non-probability sampling technique. The anthropometric variable selected for the study that consisted of body weight, standing height, sitting height, total arm length (including hand length), leg length, chest circumference, hip circumference, thigh circumference, calf circumference, biceps skin folds, triceps skin folds, subscapular skin folds, suprailliac skin folds, thigh skin folds, calf skin folds, total body fat, lean body mass and fat percentage. ANOVA was used to determine the significant difference among Kabaddi players different playing positions and wherever F ratio was found significant, Post Hoc Test (scheffe,s) was applied. The result of the study revealed that significant different were found among the corner, coverer, raider and all-rounders in height, sitting height and leg length. The all-rounders dominated the other players in these variables. Whereas, difference in the other remaining variables found insignificant among the kabaddi players of different playing positions.

KEYWORDS

All-Rounder, Coverer, Raider, Subscapular, Skinfold caliper etc.

INTRODUCTION

Anthropometry is a method of anthropology that refers to the measuring and testing the human body and to the relationship between the size of its individual parts. Measures are the distance between some points on the body (motor measurement) and the angles produced by a certain planes and the lines of the body (goniometric measurement). The task of anthropometry is as accurately as possible quantitatively characterize the morphological features of the human body (1-3).

An athlete's anthropometric and physical characteristics may regard as the one of the deciding factors for successful participation in any sports. It can be assumed that an athlete's anthropometric characteristics can in some way influence his/her level of performance, at the same time helping to determine a suitable physique for a certain sport.

Kabaddi is a combative team game. It combines the actions of wrestling, judo, rugby and gymnastics. "It is played with absolutely no equipment, in a 13 meters x 10 meters rectangular court, either outdoors or indoors with seven players on each side of the ground. Each side takes alternate chances for offence and defense. The basic idea of the game is to score points by entering into opponents' court and touching as many defense players as possible without getting caught in a single breath". (H.V.Nataraj 2008)

There are basically two domains of skills in kabaddi i.e. defence and offence. Kabaddi players, on the basis of their role in the game, can be divided to four groups namely Raiders, Corner, Coverer and All-rounders. The raiders are attackers, corner and coverer are defenders, whereas all-rounders perform both duties of attacking and defending. Kabaddi players of different playing positions performed different specified skill during the competitions which required a specified body shape and capacity. Therefore, the possession of essential anthropometric characteristics provides an edge to player to outperform his/her opponents. But we could not find any study on the anthropometrics parameters of kabaddi players in relation to their playing positions. Thus, this study had been designed to investigate the status and difference between the anthropometrics characteristics of kabaddi of different playing positions (Raiders, Coverers, Corner and All-rounders).

OBJECTIVES OF THE STUDY

To compare the kabaddi players on the basis of selected anthropometric measurements in relation to their playing positions

HYPOTHESES

On the basis of literature reviewed and scholar own understating of the problem, the research hypotheses was formulated as under

There would be no significant differences among the kabaddi players on the basis of selected anthropometric measurements in relation to their playing positions

METHOD AND PROCEDURE

Selection of the Subjects

Total 180 Kabaddi Players were selected for the study from the Inter College Zonal Kabaddi Tournaments of the different universities of Haryana state (India). Non-probability sampling technique was used. According to their playing positions players were divided in to four groups i.e. corners (N = 45), coverers (N = 45), raiders (N = 45) and all-rounders (N = 45).

Selection of the Variables

The anthropometric variable selected for the study that consisted of body weight, standing height, sitting height, total arm length (including hand length), leg length, chest circumference, hip circumference, thigh circumference, calf circumference, biceps skin folds, triceps skin folds, subscapular skin folds, suprailliac skin folds, thigh skin folds, calf skin folds, total body fat, lean body mass and fat percentage. The body weight was measured with weighing machine. Standing and sitting height was measured through stadiometer. Arm length, leg length and all body circumferences were measured using flexible steel tape. Whereas, skinfold measurements were taken with skinfold caliper. Body density was calculated with Bicipes, Triceps, Sub-secapular, Suprailliac skinfold measurements using Durerin and Rahman's equation (1967) and from the body density further percentage fat was calculated with Siri's equation (1956).

Statistical Analysis:

Mean and S.D. value of anthropometric variable of each play-

ing position was calculated. ANOVA was used to determine the significant difference among Kabaddi players different playing positions and wherever F ratio was found significant, Post Hoc Test (scheffe,s) was applied.

RESULT

The table-1 and 2 depicts the mean, S.D, F value and post hoc values of anthropometric variable of kabaddi players of different playing positions. It was evident from the tables-1 that corner, coverer, raider and all-rounders were significantly different in height, sitting height and leg length. The All-rounders were superior among the other and they were followed by Raiders, Corner and Coverer Kabaddi players. The post hoc analysis shows that All- rounders were significantly better than the coverer kabaddi players in height, sitting height and leg length. It is evident from the table-2 that the pair wise differences among the other kabaddi players were found non-significant. The results in the table-1 shows that the difference in total arm length, chest circumference, hip circumference, thigh circumference, calf circumference, biceps skinfold, triceps skinfold, subscapular skinfold, suprailiacskinfold, thigh skinfold, calf skinfold, total body fat, lean body mass and fat percentage among the kabaddi players of different playing positions were found non-significant.

Table -1 mean, standard deviation and F-value of anthropometric variables of kabaddi players of different playing positions

Variable	Corner	Coverer	Raider	All-round-er	F-val-ue
Weight (in kg)	68.68 6.40	68.44 5.99	69.71 6.75	70.44 7.07	.897
Height (in cm)	170.36 4.51	169.70 4.36	171.25 4.42	172.77 5.08	3.75*
Sitting Height (in cm)	80.71 2.05	80.43 2.62	81.20 2.80	81.96 2.68	3.10*
Total Arm Length (in cm)	77.77 2.81	77.59 3.38	78.25 2.38	78.63 2.83	1.20
Leg Length (in cm)	89.55 3.32	88.91 3.50	90.07 3.03	91.23 2.92	4.23*
Chest Circumference (in cm)	88.73 4.96	87.84 3.95	89.36 3.89	89.76 3.77	1.81
Hip Circumference (in cm)	88.86 3.69	87.44 3.28	88.98 3.73	89.19 3.28	2.32
Thigh Circumference (in cm)	50.57 4.30	50.45 7.90	50.31 3.88	51.90 7.97	.60
Calf Circumference (in cm)	33.70 2.48	33.07 1.62	32.89 4.97	33.65 2.14	.78
Biceps Skin Fold (in mm)	2.92 .58	3.07 .61	3.13 .69	2.99 .66	.90
Triceps Skin Fold (in mm)	5.17 1.15	5.24 1.57	5.97 2.04	5.28 1.25	2.57
Subscapular Skin Fold (in mm)	10.73 3.15	10.31 2.51	10.46 3.21	9.93 2.06	.65
Suprailiac Skin Fold (in mm)	5.58 2.08	5.13 1.28	5.59 2.04	5.45 1.49	.67
Thigh Skin Fold (in mm)	7.81 2.57	8.06 3.24	8.28 3.87	7.58 2.49	.43
Calf Skin Fold (in mm)	5.68 1.57	5.85 2.14	5.76 2.22	5.69 1.52	.072
Total Body Fat (in kg)	7.00 1.77	6.75 1.86	7.26 2.04	6.94 1.47	.615
Lean Body Mass (in kg)	61.67 1.77	61.69 1.86	62.45 2.04	63.50 1.49	.95
Fat Percentage (%)	10.15 2.11	9.80 2.37	10.40 2.69	9.84 1.82	.70

Table -2:- Scheffe's post hoc value of anthropometric variables kabaddi players of different playing positions.

Variable	Corner vs. Coverer	Corner Vs. Raider	Corner Vs. All-round-er	Coverer Vs. Raider	Coverer Vs. All-round-er	Raider Vs. All-rounder
Height	.66	.88	2.41	1.55	3.08*	1.52
Sitting Height	.28	.48	1.25	.77	1.53*	.77
Leg Length	.64	.53	1.68	1.16	2.32*	1.15

Discussion

The result of the study shows that kabaddi players at different playing positions (corner, coverer, raider and all-rounders) were differ significantly in the anthropometric variable namely height, sitting height and leg length. The difference of anthropometric variables existed among the kabaddi players of different playing positions might be due to the fact that different playing positions require different physique structure which helps the players to exhibit their playing potential at the optimum level. Hence their anthropometric measurement is a prerequisite for playing at a particular position. The study further revealed that all-rounders were superior among the coverer, corner and raiders in height, sitting height and leg length. It might be attributed to the fact that size of the body of players is directly proportional with size of the kabaddi court and play major role in the performance due to better reach and physical abilities therefore all-rounders outclassed other positional players in their anthropometric characteristics.

The height of the kabaddi players of all groups were better than the average height and weight of the Indian male population¹⁻³. It might be due to the fact that regular physical activity has a positive effect on the growth and development of the individuals (reference) therefore, better height and weight had been observed in our findings. Kabaddi players were also heavier than the Indian population this was because of the better lean body mass. But when we compared our players with the Indian international kabaddi players, it was observed that latter were better than our players in height and weight⁴. This difference may be attributed to the fact that selection process to the height level favoured the superior physique special in combat games (reference).

Differences in anthropometric variables among the kabaddi players in relation to their playing positions were observed in this study, though the differences in many variables were not significant. The all-rounders had highest total arm length, followed by raiders, corner and coverer kabaddi players. In kabaddi, raiders play as attackers, corner and coverers are defenders whereas all-rounders play as both attacker and defender. The longer arm length helps the all-rounders and raiders to touch the opponent from a safer distance without being caught (REF). Therefore, the players with longer arm length were preferred for offensive playing positions. The all-rounders led all other playing groups in the chest circumference and they were followed by the raiders, corner and covers kabaddi players. During the raids (offence) the all-rounders and raiders hold the breath and chant 'kabaddi -kabaddi'. Before the raid, the raider inspires the maximum oxygen, so that he can take advantage of this extra amount of oxygen to increase the duration of his raid. It enhance their vital capacity and increase the size of the lungs, which might be one of the reason for the better chest circumference in the all-rounders and raider as compare to the corner and covers.

The all-rounders were better in the hip circumference and thigh circumference as compare the other playing groups. The might be attributed to the fact that training of all-rounders comprise both speed and strength component of training to accomplished them to preform explosive and fast movement during the attack, as well as to increase their catching capacities during the defense. This strenuous training in turn leads to additional muscular hypertrophy in the all-rounder. This fact is also supported by the observation in the lean body mass as the all-rounders have highest lean body mass as compare to the other groups.

Conclusions

The all-rounders were significantly better the coverer players in height, sitting height and standing height

The all-rounders dominated the others players in the most of the variables, although the difference were not found significant.

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