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Relationship of selected physical & anthropometrical parameters to performance of female intercollegiate kabaddi players

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Abstract
Kabaddi is a combative team game played with absolutely no equipment on a rectangular court either outdoor or indoor with seven players on the ground in each side. The game is played into two halves of 20 minutes each with an interval of 5 minutes. The present study was find out the relationship between kabaddi performances and selected physical fitness variables as well as Anthropometrical parameters of university female Meerut university intercollegiate kabaddi players. 180 kabaddi players were selected for the present study. The physical fitness variables included speed, agility, power, flexibility, pull ups and endurance. Anthropometrical variables were height, weight, arm length, leg length and trunk length parameters. All the physical fitness and Anthropometrical variables were measured by using standardized test & equipments. The performance was measured by using subjects rating of 10-point rating scale. The study revealed that speed, leg explosive power and endurance were significantly correlated with performance. Agility, arm power, flexibility, was not significantly correlated with performance.

Keywords: Speed, agility, power, flexibility, endurance, height, weight, arm length and leg length

Introduction
There has been a gradual but significant change in the trends of the game since the past 50 years. What was once considered a game of brawn is not so now. The introduction of mats, shoes, new techniques & changes in rules has made the sport more interesting and advantageous to skilled players who are now able to defeat heavier players with better skills & techniques. The demands of various sports disciplines have been extensively studied. Kabaddi is a combative team game played with absolutely no equipment, on a rectangular court either outdoors or indoors with seven players on the ground in each side. The game is played into two halves of 20 minutes each with an interval of 5 minutes. It requires courage as well as ability to concentrate and anticipate the opponent's moves. In order to facilitate further growth of Kabaddi game, in order to facilitate growth of kabaddi game valid assessment procedures to comprehensively estimate the players physical, anthropometrical, The present study was carried out with the aim to find out the relationship between kabaddi performance and selected physical variables and anthropometrical variables of university female kabaddi players.

Methodology
In the Meerut university intercollegiate female Kabaddi championship held the relationship between the performance in Kabaddi and the selected physical fitness & anthropometrical variables, the following methodology was used.

Selection of the Subjects
The Subjects for the present study were female Kabaddi players of Ch. Charan Singh University Meerut who had regular training and participated in Kabaddi game. The subjects were regular participants in the Meerut university intercollegiate level Kabaddi championships. They were drawn from different colleges of Ch. Charan Singh University Meerut who were rated as the best players by a panel of three expert coaches. The subjects were participants Ch. Charan Singh University Meerut during the year 2022-23.

Sample size of the Study
The sample of the present study 180 female Meerut university intercollegiate Kabaddi players in the age group of 18 to 28 years.

Independent Variables: The various independent variables selected for the present study are listed below:

Physical fitness Variables
1. Speed
2. Agility
3. Power
4. Flexibility
5. Pull Ups
6. Endurance.

Anthropometrical variables
1. Height
2. Weight
3. Arm length
4. Leg length
5. Trunk length.

Objectives
- To study the relationship between Performance of female Kabaddi players and Physical variables and anthropometrical variables.
- To study the impact of Physical variables on Performance of Kabaddi players

Table 1: Physical fitness variables

Physical Variables	Test used to Measure	Unit of Measurement
Speed	30mts run with standing start	In Secs
Agility	4 x 10 mts shuttle run	In Sec
Power-Leg explosive power	Standing broad jump	In Sec and Centimeters
Flexibility	Sit and Reach test	In Centimeters
Pull ups	Arm strength and endurance	By numbers
Endurance	1000metrs	By Mins

Table 2: Correlations

Correlations		Performance
	Pearson Correlation	.078
Speed	Sig. (2-tailed)	.198
	N	180
	Pearson Correlation	.050
Agility	Sig. (2-tailed)	.321
	N	180
	Pearson Correlation	.078
Standing Broad jump	Sig. (2-tailed)	.189
	N	180
	Pearson Correlation	.058
Flexibility	Sig. (2-tailed)	.295
	N	180
	Pearson Correlation	.025
Pull Up	Sig. (2-tailed)	.565
	N	180
	Pearson Correlation	.282**
Endurance	Sig. (2-tailed)	.010
	N	180

*. Correlation is significant at the 0.05 level (2-tailed).
**. Correlation is significant at the 0.01 level (2-tailed).

From the above table following inferences were made

- The correlation between Performance and Speed was positive the test was not significant at 5% levels. That is, there was no significant correlation between the Performance and the Speed of the Kabaddi players at 5% levels.
- The correlation between Performance and Agility was positive the test was not significant at 5% levels. That is, there was no significant correlation between the Performance and the Agility of the Kabaddi players at 5% levels.
- The correlation between Performance and Standing Broad Jump was positive the test was not significant at 5% levels. That is, there was no significant correlation between the Performance and the Standing Broad Jump of the Kabaddi players at 5% levels.
- The correlation between Performance and Flexibility was positive the test was not significant at 5% levels. That is, there was no significant correlation between the Performance and the Flexibility of the Kabaddi players at 5% levels.
- The correlation between Performance and Pull ups was positive the test was not significant at 5% levels. That is, there was no significant correlation between the Performance and the Pull ups of the Kabaddi players at 5% levels.
- The correlation between Performance and Endurance was positive the test was significant at 5% levels. That is, there exists significant correlation between the Performance and the Endurance of the Kabaddi players at 5% levels.

a. Dependent Variable: Performance

The estimated regression equation of Performance on the Physical variables was given by Performance = 22.55 + 0.056 (Endurance).

And the above regression equation was significant as indicated in ANOVA table with P = 0.00 < 0.05 at 5% level of significance.

- Hence, one unit change in Endurance indicates 0.056 unit change in Performance.
- There exists significant correlation between the Performance and the Endurance of the Kabaddi players.
- The regression equation of Performance and the physical variables were statistically significant with one unit change in Endurance indicates 0.059 unit change in Performance.

Table 3: Anthropometrical variables

Anthropometrical variables	Equipment used to Measure	Unit of Measurement
Height	Stadiometer	Centimeters
Weight	Weighing machine	In kilograms
Arm Length	Measuring tape	Centimeters
Leg length	Measuring tape	Centimeters
Trunk Length	Measuring Tape	Centimeters

Anthropometrical variables

Correlation analysis was used and the computations made were tabulated in the

Table 4: Correlation

	Performance	R
	Pearson Correlation	.205**
Height	Sig. (2-tailed)	.005
	N	180
	Pearson Correlation	.213**
Weight	Sig. (2-tailed)	.004
	N	180
	Pearson Correlation	.128
Arm	Sig. (2-tailed)	.074
	N	180
	Pearson Correlation	-.015
Leg	Sig. (2-tailed)	.810
	N	180
	Pearson Correlation	.150*
Trunk	Sig. (2-tailed)	.029
	N	180

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).

- The correlation between performance and height was positive the test was significant at 5% levels, that is, there exists significant positive correlation between performance and height of Kabaddi players.
- The correlation between performance and weight was positive the test was significant at 5% levels, that is, there exists significant positive correlation between performance and weight of Kabaddi players.
- The correlation between performance and arm length was positive the test was not significant at 5% levels, that is, there was no significant positive correlation between performance and weight of Kabaddi players.
- The correlation between performance and leg length was negative the test was not significant at 5% levels, that is, there was no significant negative correlation between performance and leg length of Kabaddi players.

- The correlation between performance and Trunk length was positive the test was significant at 5% levels, that is, there exists significant positive correlation between performance and trunk length of Kabaddi players.

The estimated regression equation of Performance on the Anthropometrical variables was given by Performance = -2.111 -.012 (Height) +0.205 (Weight) + 0.213 (Arm length) +0.074 (Trunk length)

And the above regression equation was significant as indicated in ANOVA table with P = 0.00 <0.05 at 5% level of significance.

Results and Discussion

The multiple regression analysis was conducted and the following regression equation of performance in Kabaddi on the Eleven variables under the study were obtained. With the findings narrated earlier the investigator found that not all Eleven variables were significantly correlated with the performance in Kabaddi, step wise regression analysis was conducted for performance in Kabaddi on two classified categories-physical variables & anthropometrical variables the analysis have been presented earlier. Considering the physical variables only as independent variables in the step wise regression analysis, leg explosive power, speed and cardio vascular endurance would act as predictors for performance in kabaddi. The other three variables agility, flexibility and arm strength endurance were found to be not significantly associated with the performance in Kabaddi. Considering the anthropometrical variables only as independent variables in the step wise regression analysis Height, Weight, Arm length, Trunk length, would act as predictors for performance in kabaddi. The other leg length variable was found to be not significantly associated with the performance in kabaddi.

Conclusion

Among the physical variables agility, arm power, flexibility found statistically not significant, with kabaddi performance. Among the five Anthropometrical variables only height, weight and trunk length act on a dominate predator variables for the performance in kabaddi. Among the six physical variables only speed, leg explosive power, and Endurance act on a dominate predator variables for the performance in kabaddi. The investigator therefore, concludes that speed, leg explosive power, endurance, weight in the same order, act as dominant predictors of performance in Kabaddi

Reference

1. Rao E Prasad. 'Modern Coaching in Kabaddi' DVS Publication, New Delhi.
2. Singer Robert N, *et al.* Physical Education and Inter Disciplinary Approach. New York, The McMillan Co., 1972.
3. Flanner F. Harrington Effect of Manifest Anxiety on Performance of Gross Motor Skill". Completed Research in Health, Physical Education and Recreation, (1966), 41. Miscellaneous
4. Chaudhary Rajeev. Physiological Profiles of inter-College Level Judo Players. 'Unpublished M.Phil. Dissertation, LNIPE, 1996.
5. Maria M, Van Gent, *et al*. Anthropometric, physical and motor fitness profiles of 10-to 15-year old girls in the north-west province of south Africa: implications for sport talent identification, African Journal for Physical, Health Education, Recreation and Dance,2003:9(1):4-9.
6. Prasad Rao E. The Complete Hand Book on Kabaddi (1st Edition, New Delhi: Jagadamba Publication, 2002, 176-177.
7. Amusal LO, *et al*. Anthropometric profiles of top national track athletes. AJPHERD,2003:9(1):12.
8. Wildschutt PJ, *et al*. Athropometric and physiological characteristics of South African triathletes. AJPHERD,2002:8(2):10.
9. Prasad Rao E. Synopsis on Construction of Tests to Assess Kabaddi Playing Ability, H.V.P. Mandals Research and Department of Physical Education, Amaravathi, 1997.
10. Yuvraj Singh Dasondhi, Ajay Karkare. Construction of Physical Fitness Test Norms for Under 19 Cricketers in Central Zone. Indian Journal of Applied Research,2016:6(1):645-648.
11. Khanna GL, Mujumdar P, Malik V, Vrinda T, Mandal A study of physiological responses during match play in Indian national kabaddi players. Br J Sports Medicine,1996:30:232-235.
12. Prasad Rao E. The Complete Hand Book on Kabaddi (1st Edition, New Delhi: Jagadamba Publication), 2002, 176-177.
13. Khanna GL, Mujumdar P, Malik V, Vrinda T. Mandal A study of physiological responses during match play in Indian national kabaddi players Stastical toos use (s p s s), softwere. Br J Sports Medicine,1996:30:232-235.
14. Prasad Rao E. Synopsis on Construction of Tests to Assess Kabaddi Playing Ability, H.V.P. Mandals Research and Department of Physical Education, Amaravathi, 1997.
15. Sridhar Kumar GR, Chandrakumar M. Relationship of selected physical anthropometrical and psychological variables with performance in kabaddi, 2006.
16. Rex Hazeldine. Fitness for Sports (Malboroush: Crow Wood Press, 1987.