Influence of physical and psychological variables on playing ability of kabaddi.

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Abstract

Purpose of the present study was to identify the physical and psychological variables who can best predict the performance of Kabaddi . For the purpose of study fifty female Kabaddi players was selected purposely from different schools of Mandya district. The age of subjects was 14 to 17 years. To find the playing ability, leg explosive strength, shoulder explosive strength, abdominal strength endurance, flexibility and agility were selected as physical variables while sports competition anxiety and self-confidence were selected as psychological variables. To measure the selected variables standard test was used while playing ability was measured by panel of three experts on ten point rating scale. Data was collected from different schools from Mandya district from prior permission of physical education teachers by proper explained and demonstrated of test to the subjects and required trial was provided before final effort/attempt. Descriptive statistics, Pearson product moment correlation and linear regression (step method) was used at 0.05 level of significance. Findings revealed that all the selected physical variables are significantly correlated with playing ability while both selected psychological variables are not significantly correlated with kabaddi playing ability. Where regression model suggest that only Muscular endurance and flexibility are appropriate to cause maximal variance in kabaddi playing ability.

Keywords: Regression, step method and Kabaddi.

Introduction

Sports performance is the sum of numerous factors which can vary from individual to individual, even if ultimately they achieve similar results in competition. Deficient person can be compensated for being superior technique, inadequate sprinting speed by superior endurance or inferior technique by aggressiveness. A few centimeters and fraction of seconds decide between record performances, victory or defeat in tough international competitions; for this reason it is very important to identify and fully realize each individuals potential. Dirix and Knuttgen (1988) advocated that it has become a necessity to identify and select a future elite athlete right in childhood or early adolescence. It takes many years of intensive and regular training till an international sports performance level is achieved. The children who are selected for elite sports activities require suitable conditions, sports facilities, equipment of high quality, rational life style, the guidance of expert sports physicians and well educated and experienced coaches. Such conditions can be created for selected children at the right age to get the quality of performance. Therefore, the correct identification of selection and placement of young talent is becoming an important and challenging task everywhere in the modern competitive sports world. It has become a necessity to identify and select a future elite athlete right in childhood or adolescence. It makes many years of intensive regular training till an international sports performance level is achieved. The children, who are selected for elite sports activities require suitable conditions and sports facilities equipment of high quality, a rational style of life and the service of experts including a sports physician, a well-educated and experienced coach etc. Such conditions can be created for selected children only. Therefore, the correct identification, selection and placement of young talents are becoming important everywhere. On the basis of above mentioned facts, it is considered worthwhile to investigate the appropriate physical and psychological variable as predictors for performance of volleyball young guns. Moreover, the present study would high light some of the important skills which may have to

bear in mind while looking for the selection of talented Kabaddi players and also to develop these components through the systematic training program. Objectives of the Study ¬ to find out the status of players in relation to physical and psychological fitness. ¬ To find out the relation of physical variables and psychological variables with Kabaddi playing ability ¬ To identify the effect of selected physical and psychological variables on Kabaddi playing ability Methodology: To achieve the purpose of present study fifty female kabaddi players was selected purposely from different schools from Mandya district.The age of subjects was 14 to17 years. To predict the playing ability, leg explosive strength, shoulder explosive strength,

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muscular endurance, flexibility and agility were selected as physical variables while sports competition anxiety and self -confidence were selected as psychological variables. To measure the selected variables standard test was used while playing ability was measured by panel of three experts on ten point rating scale. Data was collected from different schools from Mandya District. Purpose of test was explained and test was demonstrated to the subjects and required trial was provided before final effort/attempt. Descriptive statistics was used to determine the characteristics of data and to know the status of players. Pearson product moment correlation was used to find out the relationship of selected physical and psychological variables with Kabaddi playing ability, while to identify the suitable skill that effect more to Kabaddi playing ability linear regression (step method) was used at 0.05 level of significance.

Findings

Table 1: Status of Kabaddi Players in relation to selected Physical Variables

Statistics	Leg explosive strength	Shoulder explosive strength	Muscular endurance	Flexibility	Agility
Mean	2.534	5.543	29.564	21.264	7.192
Median	2.530	5.410	30.000	22.000	7.300
Mode	2.710	5.310	30.000	25.000	7.300
Std. Deviation	.183	.631	2.268	5.387	.502
Coeff. Of Variance	7.232%	11.391%	7.673%	25.338%	6.986%
Skewness	-.042	.108	-.109	-.658	.222
Std. Error of Skewness	.378	.378	.378	.378	.378
Kurtosis	-.674	-.628	.818	.467	-.099
Std. Error of Kurtosis	.741	.741	.741	.741	.741
Range	.790	2.610	11.000	18.400	2.180
Minimum	2.610	4.300	24.000	9.600	6.200
Maximum	2.950	6.910	35.000	28.000	8.400

Table: 1 reveals that the mean and median for all the variables are nearly equal. Where coefficient of variance for agility is 6.986%, which is least among the physical variables so that agility is having least variation in compared to other variables. Whereas it is highest in flexibility (25.338%) thus flexibility is variable in which Kabaddi players are most heterogeneous. In respect to skewness, leg explosive strength (-.042), Muscular endurance (-.109) and flexibility (-.658) is negatively skewed, SK < 0, which means most of the scores of leg explosive strength, Muscular endurance and flexibility are more than its mean value. While shoulder explosive strength (.108) and agility (.222) is positively skewed, where SK > 0, it means most of the scores of shoulder explosive strength and agility is less than its mean value. In terms of kurtosis, Muscular endurance of Kabaddi players has positive value of kurtosis, which indicates that the scores cluster more around its mean value whereas leg explosive strength, shoulder explosive strength, flexibility and agility has negative value of kurtosis, which indicates that the scores cluster less around its mean value.

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Table 2: Status of Kabaddi Players in relation to selected Psychological Variables and kabaddi Playing Ability

Statistics	State competition anxiety	Self confidence	Kabaddi Playing ability
Mean	10.714	32.051	6.397
Median	10.000	34.000	6.500
Mode	10.000	34.00	6.00
Std.Deviation	2.469	5.794	1.225
Skewness	.327	-1.430	-.190
Std. Error of Skewness	.378	.378	.378
Kurtosis	1.171	1.704	-.380
Std.Error of Kurtosis	.741	.741	.741
Range	12.000	24.000	5.000
Minimum	5.000	16.000	4.000
maximum	17.000	40.000	9.000

Table: 2 reveal that the mean and median for all the variables are nearly equal. In respect to skewness, state competition anxiety (-1.430) and Kabaddi playing ability (-.190) is negatively skewed, where SK < 0, which means most of the scores of state competition are more than its mean value, while self-confidence (.327) is positively skewed, where SK > 0, it means most of the scores of self-confidence is less than their mean value. In terms of kurtosis both psychological variables of Kabaddi players has positive value of kurtosis, which indicates that the scores cluster more around its mean value. In terms of kurtosis, playing ability of kabaddi players has negative value of kurtosis, which indicates that the scores cluster less around its mean value

Table 3: Relationship of Kabaddi Playing Ability with Physical Variables

S.No	Independent Variable	Dependent Variable	Coefficient	Sig.
1	Leg Explosive Strength	Kabaddi Playing Ability	.381	.017
2	Shoulders Explosive Strength		.328	.042
3	Muscular Endurance		.513	.001
4	Flexibility		.385	.016
5	Agility		.502	.001

Table: 3 reveal that all physical variables are significantly correlated with Kabaddi playing ability, where obtained correlation coefficient values of these physical variables, 0.381, 0.328, .513, .385 and -0.502 is significant at 0.05 level of significance.

Table 4: Regression Model Summery of Physical Variables in Relation to Kabaddi Playing Ability

Model	R	R Square	Adjudted R Square	Std.Error of the Estimate	F- ratio	sig
	.593	.352	.316	1.014	9.758	.000

Predictors: (Constant), Muscular Endurance & Flexibility. This regression model reveals that the selected predictor variables are significantly related with Kabaddi playing ability where R represents the multiple correlation between all the predictor variables and the criterion variable. Thus the obtained multiple correlation value is found significant, where obtained R (0.593) is significant at 0.05 level of significance.

R2 represent the total amount of variance accounted for in the criterion variable by the predictor variables. Thus, the amount of variance is 35.2% in kabaddi playing ability by Muscular endurance and flexibility. Adjusted R2 is a reduced value for R square which represent the actual variance in criterion variables due to predictors. Therefore the actual variance is 31.6% in Kabaddi playing ability. Obtained F value reveals that regression model is significant or not for prediction. Obtained F value 9.758 is significant at 0.00 level, which means that regression model cause variance in criterion variable and significant for prediction.

Table 5: Standardized Coefficient Table for Predictor Variables (Physical) of Kabaddi Playing Ability.

Model	Unstandardized Coefficients		Standardized Coefficients	t.	Sig.
	B	Std. Error	Beta		
Constant	-2.388	2.166		-1.103	.278
Muscular Endurance	.248	.748	.459	3.361	.002
Flexibility	.069	.031	.302	2.209	.304

Equation to Estimate the Kabaddi Playing Ability = - 2.388 + muscular Endurance (0.248) + Flexibility (0.069) Table reveals that values of regression coefficients is positively affecting the dependent variable, means increase in value of Muscular endurance and flexibility lead to increase in kabaddi performance at rate of respected coefficient value. Beta value reflects the relative importance of predictor variable and from table it is clearly evident that muscular endurance has more effect in comparison to flexibility on Kabaddi performance. t value indicates the significance of predictor variable in model and t value of both the predictor variable is significant at 0.05 level hence both variables are contributing to increase the performance.

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Table 6: Relationship of Kabaddi Playing Ability with Selected Psychological Variables

S.No	Independent variable	Dependent variable	Coefficient	Sig.
1	State competition Anxiety	Kabaddi playing Ability	-.121	.465
2	Self Confidence		-.099	.548

Table: 6 reveals that selected psychological variables are not significantly correlated with kabaddi playing ability, where correlation coefficient of state competition anxiety and self- confidence with Kabaddi playing performance is -.121 and -.099. Correlation coefficient of both psychological variables is not significant at 0.05 level of significance.

Conclusion & Discussion:

Results of the study revealed that psychological variables (state competition anxiety and self- confidence) are not linearly correlated with Kabaddi playing ability. All selected physical variables (shoulder explosive strength, leg explosive strength, Muscular endurance, flexibility and agility) are significantly correlated with Kabaddi playing ability. Physical variables of the Kabaddi players i.e. leg explosive strength, shoulder explosive strength, muscular endurance, flexibility and agility are the suited most to the nature of the Kabaddi game. As it is well evident from various literatures that shoulder and leg explosive strength is most dominating variables either it is related to kicking and jumping ability, or it is related to fast movement while riding and blocking with precision and ease, in all these events leg and shoulder explosive strengths play a vital role. Kabaddi has been described as Interval sport with both anaerobic as well as aerobic component.

In long matches or tournament play, the players have to bend, jump and move thousands of times which need good muscular endurance. It is one of the required qualities for excelling in Kabaddi. Technically like many other games; Kabaddi is also a kind of game in which leg and thigh muscles play an important role in agility, swiftness and kicking. Especially in kicking, cough and thigh muscle strength can improve the speed of a kicking . Therefore, the training of the muscles on thigh, leg and shoulder is usually emphasized in the physical training of kabaddi players. Flexibility is the next who found significantly correlated with Kabaddi playing performance of players. As we know Flexibility provides another dimension in performance that allows a higher degree of freedom and ease of movement coupled with some important implications for greater safety from injury. In Kabaddi, the players have to move suddenly in forward direction, sideward directions, so flexibility of hip and back is of utmost importance. As in study of Lee E.J. et al have found significant correlation between vertical jump and hip flexion. His findings have supported the assumption that greater flexibility is related to greater skilled performance. Thus, he has concluded that greater hip flexibility may benefit the jumping and kicking ability. The physical variable, agility is also found significantly correlated with performance of Kabaddi players. As literatures revealed, in a Kabaddi game, players should try their best to prevent them by caught

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from defenders, and this requires players to be quick in reaction and swift in movements, and
a player's moving speed is affected by many factors, including his/her reaction speed, the lower limbs' strength, explosive force and agility. In respect to psychological variables results revealed that selected psychological variables are not significantly related with Kabaddi playing performance. As it is well known to us the average age of a champion team is usually in the range of 23 to 28 years. It normally needs 8 to 10 years to build up a champion team or to cultivate a champion athlete. Therefore, the best age for recruitment is around 13 years for female athletes and 15 years for male athletes. An important issue in the recruitment is the prediction of the fitness, and the reliability of the prediction. So far the recruitment of Kabaddi players have been mainly based on personal experience of the coaches, and this, to some extent, restricts the improvement of Kabaddi sport.

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