

## **A CRITICAL STUDY ON GAME PREDICTION THROUGH ANTHROPOMETRICS AND PHYSICAL FITNESS AMONG MALE KABADDI PLAYERS**

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### **ABSTRACT**

The study's objective was to predict Kabaddi playing ability among college players based on a few anthropometrical and physical variables. One hundred forty-four male intercollegiate Kabaddi players between the ages of 18 and 25 were chosen at random from a number of colleges in the state of Hyderabad in India. The subjects were taken as subjects because they had played Kabaddi for at least three years and only represented their college teams. Each participant received a series of anthropometric measurements. These included Stadiometer measurements of standing height; Using a Lufkin Anthropometric Tape, the lengths of the arms and legs, as well as the body weight, were measured. The International Society for the Advancement of Kinanthropometry's standard testing procedure served as the basis for the collection of the data. Actual wellness parts were estimated by the accompanying tests. The 50-meter dash measured speed, the sit-and-reach test measured flexibility, the standing broad jump measured leg explosive strength, modified sit-ups measured muscular power, and the 2.4-kilometer run measured muscular endurance. Three experienced Kabaddi coaches gave a subjective assessment of the playing ability, which was chosen as the performance factor. Using equipment that had been validated by science, all testing was carried out two days prior to the intercollegiate competition. For each of the variables that were chosen, the means and standard deviations were calculated. Using Pearson's product-moment correlation coefficients, the relationship between the selected anthropometrical, physical, and Kabaddi playing ability was calculated. Linear predictive models (step-wise argument selection) were constructed for each of the selected anthropometrical and physical variables that statistically correlated with performance. Male inter-collegiate Kabaddi players showed a significant correlation between anthropometrical, physical, and performance variables, according to the findings. The findings also revealed that Kabaddi players' playing ability can be predicted by their speed, agility, weight, and flexibility.

**Key Words:** Anthropometry , playing ability, correlation.

## INTRODUCTION:

Kabadi is a major sport in India that is played all over the country. Asian sports are also giving this game a good reputation. This game is delegated a group game. In contrast to other forms of art, which only partially utilize mental and physical abilities, sport is a medium through which a player develops both physical and mental abilities, ultimately leading to a conscious method of doing whatever one does most effectively. The Indian game of kabadi is essentially one that requires both power and skill. Rugby and wrestling are both incorporated into kabaddi. More than sixty-five nations play kabaddi, particularly Asian nations. The establishment of the International Society for Advancement of Kinanthropometry in 1986 gave anthropometric measurements that are relevant to human movement formal recognition as a field. Anthropometrists from every continent have been involved in a number of significant, multidisciplinary studies examining people's physical characteristics. The quantitative interface between human structure and function has been referred to as kinanthropometry (Ross, Drinkwater, Bailey, Marshall, and Leahy, 1980) . Age, body size, shape, proportion, composition, and maturation in relation to gross body function are measured and analyzed to examine this interface. According to previous studies (Carter, 1970 & Duquet and Carter, 2001), certain physical impressions like body composition (body fat, body mass, muscle mass) and physique (somatotype) can significantly influence athletic performance. Body structure and morphological characteristics are important determinants of performance in many sports.

The physical condition of the participant is of utmost importance in high-performance and performance sports. It is, in fact, the concern for the sportsperson's body's adaptation to growing physical and mental demands, which involve all body parts. High-intensity motor activities make up the modern Kabaddi game, which requires players to use a wide range of their capabilities. One can barely single out any capacity or a trademark which isn't participated in the presentation of Kabaddi players. Kabaddi is a game of strength. The player cannot perform well without endurance; at the same time, the player requires all of the characteristics, such as speed, agility, flexibility, endurance, and so on. Nowadays, the majority of players can perform well in a game because they are tall. Physical characteristics are very important for better Kabaddi performance because players cannot achieve the game's

goal without them. The study's objective was to predict Kabaddi playing ability among college players based on a few anthropometrical and physical variables.

## **METHODOLOGY:**

### **SAMPLE OF THE STUDY:**

One hundred forty-four male intercollegiate Kabaddi players between the ages of 18 and 28 were chosen at random from a number of colleges in the state of Hyderabad in India. The subjects were taken as subjects because they had played Kabaddi for at least three years and only represented their college teams.

### **VARIABLES OF THE STUDY:**

Each participant received a series of anthropometric measurements. These included Stadiometer measurements of standing height; Using a Lufkin Anthropometric Tape, the lengths of the arms and legs, as well as the body weight, were measured. The International Society for the Advancement of Kinanthropometry's standard testing procedure served as the basis for the collection of the data. Actual wellness parts were estimated by the accompanying tests. The 50-meter dash measured speed, the sit-and-reach test measured flexibility, the standing broad jump measured leg explosive strength, modified sit-ups measured muscular power, and the 2.4-kilometer run measured muscular endurance. Three experienced Kabaddi coaches gave a subjective assessment of the playing ability, which was chosen as the performance factor.

### **STATISTICAL METHODS:**

Using equipment that had been validated by science, all testing was carried out two days prior to the intercollegiate competition. For each of the variables that were chosen, the means and standard deviations were calculated. Using Pearson's product-moment correlation coefficients, the relationship between the selected anthropometrical, physical, and Kabaddi playing ability was calculated. Linear predictive models (step-wise argument selection) were constructed for each of the selected anthropometrical and physical variables that statistically correlated with performance.

**RESULTS & DISCUSSION****Table 1** Descriptive Statistics of College level Players

S.No	Variables	Mean (N=144)	SD
1	Playing ability	7.7569	± 1.03
2	Height	170.5764	± 6.36
3	Weight	62.5278	± 7.62
4	Leg Length	98.9167	± 5.58
5	Arm Length	73.0347	± 4.08
6	Speed	6.3062	± 0.54
7	Flexibility	18.2986	± 2.98
8	Leg Explosive strength	1.8080	± 0.28
9	Muscular Power	49.9028	± 7.39
10	Muscular Endurance	10.7201	± 0.61

The descriptive statistics of anthropometric characteristics, physical variables, and playing ability of college-level Kabaddi players—the mean and standard deviation—were presented in Table 1. Correlation analysis was used to try to connect the coaches' rating as a measure of playing ability with the anthropometric characteristics and physical variables of college-level Kabaddi players.

**Table 2** Inter-Correlation of Selected Anthropometrical, Physical Variables with the Playing Ability of college level Kabaddi Players

Variables	X <sub>1</sub>	X <sub>2</sub>	X <sub>3</sub>	X <sub>4</sub>	X <sub>5</sub>	X <sub>6</sub>	X <sub>7</sub>	X <sub>8</sub>	X <sub>9</sub>
<b>C.R</b>	0.098	0.175	0.103	0.030	0.612	0.214	0.797	0.204	0.142
<b>X<sub>1</sub></b>		0.403	0.861	0.795	0.053	0.297	0.041	0.001	0.126
<b>X<sub>2</sub></b>			0.232	0.151	0.051	0.310	0.194	0.022	0.012
<b>X<sub>3</sub></b>				0.782	0.044	0.291	0.041	0.027	0.108
<b>X<sub>4</sub></b>					0.035	0.244	0.108	0.036	0.115
<b>X<sub>5</sub></b>						0.091	0.561	0.060	0.080
<b>X<sub>6</sub></b>							0.327	0.038	0.034
<b>X<sub>7</sub></b>								0.063	0.038
<b>X<sub>8</sub></b>									0.082

C.R	Playing ability	X <sub>5</sub>	Speed
X <sub>1</sub>	Height	X <sub>6</sub>	Flexibility
X <sub>2</sub>	weight	X <sub>7</sub>	Leg Explosive strength
X <sub>3</sub>	Leg Length	X <sub>8</sub>	Muscular Power
X <sub>4</sub>	Arm Length	X <sub>9</sub>	Muscular Endurance

The other physical variables had a moderate correlation with the playing ability, as shown in Table 2. There was a correlation between the playing ability and speed ( $r = 0.61$ ) and Leg Explosive strength ( $r = 0.79$ ). The remaining anthropometrical characteristics have a low correlation with college-level Kabaddi players' playing ability. The best linear regression models for predicting the playing ability of college-level Kabaddi players were then examined through stepwise selection. In each model, just the variable that accomplished importance with the cut-off standards set at likelihood of  $F < \text{equivalent to or under } 0.001, 0.01 \text{ and } 0.05$  level was recorded. Table 3 displays the predictor variables and their significance in predicting Kabaddi players' abilities.

**Table 3:**

Mode I	Variable	R	R	Unstandardized		Standardised
		R Square	Square	Coefficients		
		R Square Change	F Change	B	Std. Error	Beta
1.	(Constant)			2.409	0.355	
	Leg Explosive Strength	0.795 (a)	0.635	2.950	0.189	0.798
2.	(Constant)			0.525	0.465	
	Leg Explosive Strength			3.019	0.181	0.913
	Muscular power	0.847 (b)	0.720	0.039	0.009	0.266
3.	(Constant)			3.954	0.977	

	Leg Explosive Strength			2.585	0.196	0.695
	Muscular Power			0.044	0.007	0.245
	Speed	0.856 (c)	0.733	0.795	0.103	0.209
4.	(Constant)			6.489	1.259	
	Leg Explosive Strength			2.598	0.195	0.789
	Muscular Power			0.23	0.005	0.322
	Speed			0.405	0.098	0.210
	Leg length	0.765 (d)	0.648	0.015	0.007	0.124
5.	(Constant)			6.169	1.115	
	Leg Explosive Strength			2.360	0.190	0.553
	Muscular Power			0.023	0.005	0.130
	Speed			0.471	0.088	0.237
	Leg length			0.044	0.012	0.197
	Arm length	0.784 (e)	0.653	0.43	0.15	0.108

$(n=144) : (R^2 = 0.795 \text{ for step 1; } \Delta R^2 = 0.653 \text{ for final step}) \text{ Significant at } * p < 0.4.$

Playing ability = 2.409 + 2.360 (X<sub>7</sub>) + .023 (X<sub>8</sub>) - .471 (X<sub>5</sub>) - .044(X<sub>3</sub>) + .043(X<sub>4</sub>)

The predictive equation's regression analysis is depicted in Table 3 for the college-level Kabaddi players in the samples. Leg explosive strength scores made up 79 percent of the anthropometrical and physical variables in the first performance ability model. Up until the final model, muscular power, speed, leg length, and arm length all contributed significantly (by 0.01 and 0.05 levels) to the prediction of college-level Kabaddi players' playing ability.

The final model had an R2 change (R2) of .763 and an R2 value of .874 for the combination of leg explosive strength, muscular power, speed, leg length, and arm length on playing ability (87 percent). Complex human movement is a part of many team sports, and it can be observed at various levels of detail. This is especially true when it comes to team sports like basketball, handball, and soccer. One of the most well-liked team sports, kabaddi has been played by men and women all over the world. In its most basic form, kabaddi is a team sport played outdoors in Asia's tropical nations. Since spectators completely engage in the game and provide the players with a great deal of encouragement, Kabaddi is appropriately dubbed the "Game of the Masses" due to its high level of excitement and thrill.

Execution in any games action depends generally on actual wellness. A player's physical fitness and motor abilities, such as speed, strength, endurance, and flexibility, are the primary goals of sports trainers. Conditioning is another name for improving a player's physical fitness. The most crucial component of any athlete's training is a solid conditioning program. There are two types of physical fitness, or conditioning,: general fitness and specific fitness. The terms "general fitness" and "motor qualities"—such as strength, endurance, flexibility, and coordination ability—are used interchangeably to describe the characteristics that are necessary for all athletes, regardless of the sport. Motor skills that are at least a little bit above average are required for every sport. When a player develops the necessary motor skills at the intensified level for a particular sport, they have attained specific fitness. Kabaddi encourages muscular strength, stamina, and endurance in the body; "Cant holding" improves cardiovascular endurance and resistance due to its unique feature. When moving quickly in such a small space of 20' to 30' (or 10 to 12 mts), fine flexibility and agility are developed. The player's eyes and body movements speed up. In contrast, physical skills include quickness, power (strength), endurance, flexibility, quick action, and proper eye-hand coordination. On the off chance that your body is adaptable, no one but you can kick, swirl wrestle with lower leg legs and things. Here more than speed increase is central; The player has more punch when they have strong leg muscles.

### **CONCLUSIONS:**

The formation of anthropometrical and physical variables optimum predictive equation models among male Kabaddi players was demonstrated by the study's outcomes.

From the data's analysis,

- 1.The findings showed that playing ability was correlated with speed, leg explosive strength, flexibility, and muscular power.

2.The findings also revealed that leg length, arm length, muscular power, speed, and explosive leg strength are the most predictive factors for Kabaddi players' playing ability.

#### REFERENCES:

- [1] Jadhav, K. M. (2011). Role of Yoga in Kabaddi Sport. Golden Research Thoughts, Vol. 1, Issue II.
- [2] Verma, A., Rana, D. and Singh, A. To Develop Physical Profile of Kabaddi Players: The Descriptive Study.*Indian Journal of Movement Education and Exercises Sciences (IJMEES)*,1(1), 2011.
- [3] Duquet, W. and Carter, J. E. L. Somatotyping. In: Eston, R. and Reilly, T. (eds.) Kinanthropometry and Exercise Physiology Laboratory Manual, 1: Anthropometry. London: Routledge, 2001, pp. 47–64.
- [4] Ross, W. D., Drinkwater, D. T., Bailey, D.A., Marshall, G. R. and Leahy, R. M. Kinanthropometry; Traditions and new perspective. In: Ostyn, M., Beunen, G. and Simons, J. (eds.) Kinanthropometry II. International Series on Sports Science. Vol. 9. Baltimore: University Park Press, 1980, pp. 3–27.
- [5] Carter, J. E. L. The somatotypes of athletes –a review.*Hum. Biol.*42, 1970, pp. 535–569.