



ISSN: 2456-4419

Impact Factor: (RJIF): 5.18

Yoga 2016; 1(1): 42-45

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www.theyogicjournal.com

Received: 13-05-2016

Accepted: 25-09-2016

**Dr. Surjeet Singh**

Assistant Professor,

Directorate of Physical  
Education & Sports University  
of Kashmir, Jammu and  
Kashmir, India

## Selected physiological variables of Kabaddi players with their playing position

**Dr. Surjeet Singh**

### Abstract

Kabaddi is an indigenous game of India originated in southern part of India became very popular sports in North West part of India. It is very competitive in nature which demands high class of physiological from players. These physiological characteristics play an effective role for the attainment of high level of performance in every field. For the present study the subjects were selected from the inter-college tournaments of university of Kashmir. Methodology Total 40 Kabaddi players were selected for this study, ten from every position on which they used to play that was 10 from corners position, 10 covers, 10 raiders and 10 were all-rounder's. Peak Expiratory flow rate, Sitting pulse rate and Sitting Blood pressure were choose as Physiological parameters for this study. Appropriate statistical test were used to get the interference of result. F test was applied to find out the relationship of physiological parameters on position of playing. Conclusion: the result shows no significant different was found on pulse rate among Kabaddi players playing on position. While as significant difference was found in B.P Systolic and B.P Diastolic variables in player playing on different positions.

**Keywords:** Physiological, Kabaddi players, indigenous game

### Introduction

Kabaddi is a combative team game played with absolutely no equipment in rectangular court of a 13 meters x 10 meters, it can be played outdoors as well as 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, which need high class, efficiency physiological system of human Ross (1981) [18].

The physiological characteristics play an effective role for the attainment of high level of performance in every field. Among the various physiological parameters, exercise has powerful effect on the cardio-respiratory endurance and the maintenance of arterial blood pressure. Aderson (1968) has pointed out that during light exercise; there would be first increase in heart rate followed by decline to a normal level. However, during prolonged heavy work load, there would be an accelerated heart rate in order to achieve adequate cardiac output. Devries (1970) observed a linear relationship between work load per unit time of intensity and rise in heart rate. Physiological parameters have very serious implications on the health and well being of individuals. Maity, D. K. (1983) [10]. It is defined as the degree of task under specific ambit conditions Uppal, A. K (1980) [21]. At rest, physiological difference between athletes, with high level of endurance, is negligible. When two athletes, start working, the difference quickly appear. An athlete with greater endurance is characterized by the ability to withstand high level of lactic acid and to use larger volumes of oxygen and maintain lower heart rate during prolonged work. The return of the heart rate and lactic acid concentration to the normal is faster in a trained athlete. Nataraj, H.V., Kumar M. C. (2008) [16].

At rest, the blood pressure of high endurance sportsman is lower than that of a non-sportsman. It rises under the stimulus of emotions before and during competition. During competition the change in the systolic pressure is higher than that of diastolic pressure. If continuous measuring of blood pressure during a period of training of endurance is carried out, it is observed that originally higher systolic pressure diminishes with increased training load. After this period of hypotension, the systolic pressure rises again.

### Correspondence

**Dr. Surjeet Singh**

Assistant Professor,

Directorate of Physical  
Education & Sports University  
of Kashmir, Jammu and  
Kashmir, India

Technically speaking, when the exercise is performed, physical and chemical changes in the body are suddenly speeded up, the circulatory, respiratory and thermoregulatory systems automatically shifts into a high gear. Surjit, K.P. (1988) [20], these changes can be described in terms of nervous and endocrine messages to various organs of the body. This pattern of recovery is affected by various factors e.g. physiological condition of the subjects, rate and intensity of work, type and mode of work and on the top of the physiological ability of the subject to face and adjust to particular work stress. Mehta, Kamlesh (1992) [14] we may therefore, speak of transitional states between two steady states. The measurable rates at which those transitions occur are the speed with which the regulation shifts. The first transition is the onset, the second is the recovery and the latter is specifically useful for visualizing recovery response. Kamlesh Mehta (1992) [14].

It is believed that faster the recovery better are the physical conditions. Karpovich and Sinning (1971) [8] found out that during the change in heart rate would depend upon the individual. For equal intensity work the heart rate differed from individual to individual depending upon the nature of the activity they perform in daily life. Malhotra, M.S. et al., (1972) [11] Smith (1992) [19] Heart rate is an indicator of the intensity of physiological factors and is one of the measures of cardiac output. Blood pressure levels indicate pumping action of the heart. This systolic pressure is a measure of the heart to generate the enough force to overcome peripheral

resistance and to propel the blood into the arteries.

At international level there has been some thrust on research to study and predict physiological performance factors in various games and sports. But not enough research studies have concentrated on prediction of performance factors, especially in the game of Kabaddi. The selected Physiological parameters play a very important role in determining the performance of any player in general and Kabaddi in particular. A training schedule which takes into an account of all these factors can prove very beneficial in improving the performance of the players. The study was conducted to know the relationship between physiological parameters taken into account with the playing position in Kabaddi.

**Methodology**

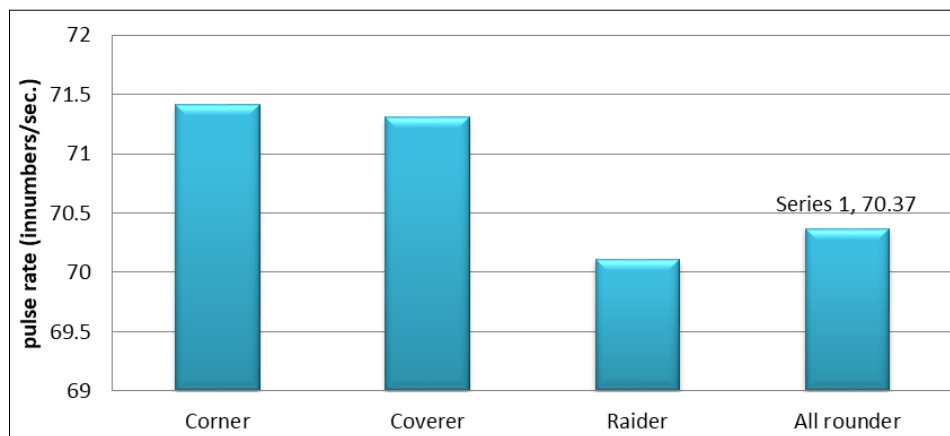
For the present study the subjects were selected from the inter-college tournaments of university of Kashmir. Total 40 Kabaddi players were selected for this study, ten from every position on which they used to play that was 10 from corners position, 10 covers, 10 raiders and 10 were all-rounder's. Peak Expiratory flow rate, Sitting pulse rate and Sitting Blood pressure were choose as Physiological parameters for this study. All protocol were followed for the administration of test Kansal, D. K. (1996) [7]. Clark, H. H. 1978 [2] Appropriate statistical test were used to get the interference of result. F test was applied to find out the relationship of physiological parameters on position of playing the level of significant difference was fixed at the 0.05 level.

**Table 4.1:** Comparison of sitting pulse rate (in number/sec.) between Corners, Coverers, Raideres and All- Rounder's of Kabaddi players.

Kabaddi players positions		N	Mean	Std. Deviation	Std. Error	F	Sig.
Group	Corner	10	71.42	3.951	.5890	.712	.546
	Coverer	10	71.31	9.278	1.3830		
	Raider	10	70.11	1.748	.2605		
	All rounder	10	70.37	2.228	.3322		
	Total	40	70.80	5.224	.3894		

Table no. 4.1 indicates that mean, Standard Deviation, S.E.M. and F ratio of pulse rate of Corners, Coverers, Raiders and All-Rounders of Kabaddi players. It was evident from the data that there was no significant different among Kabaddi players

of different playing position. But here again the raiders had lowest pulse rate and followed by all-rounder's, coverers and corners.



**Fig 1:** Pulse rate (in numbers/sec.) of Kabaddi players of different playing positions

**Table 4.2:** Comparison of B.P Systolic (in mmg) between Corners, Coverers, Raideres and All- rounders of Kabaddi players

Kabaddi players positions		N	Mean	Std. Deviation	Std. Error	F	Sig.
Group	Corner	10	1.244	7.107	1.0595	13.73	.000
	Coverer	10	1.253	4.284	.6386		
	Raider	10	1.188	4.970	.7410		
	All rounder	10	1.221	4.052	.6041		
	Total	40	1.226	5.776	.4305		

Table no. 4.2 indicates the mean, Standard Deviation, S.E.M. and F ratio of B.P Systolic of Corners, Coverers, Raiders and All-Rounders of Kabaddi players. It was evident from the data that there was significant different among Kabaddi players of

different playing position as the value of F ratio found significant at .05 levels, therefore, post hoc test has been applied.

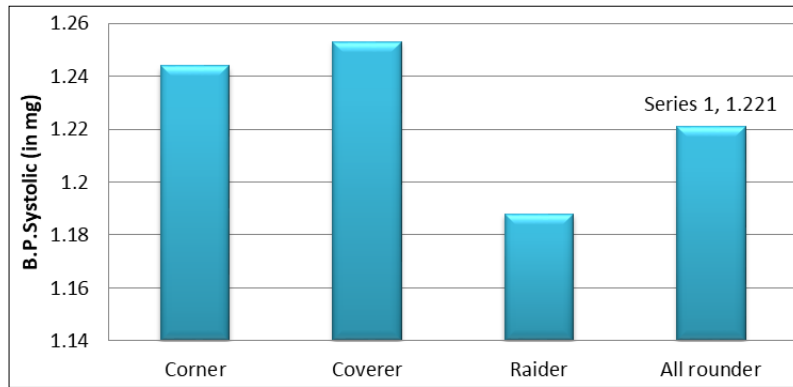


Fig 2: B. P. Systolic (in mg) of Kabaddi players of different playing positions

Table 4.3: Scheffe’s post hoc values of B. P. Systolic (in mg) among kabaddi players of different playing position.

Mean				Mean difference	Sig
Corner	Coverer	Raider	All-rounder		
1.244	1.251			-.9111	.878
1.244		1.188		5.600*	.000
1.244			1.221	2.222	.261
	1.251	1.188		6.511*	.000
	1.251		1.221	3.133*	.012
		1.188	1.221	-3.377*	.028

Table no. 4.3 It was observed from the table’s no. 4.2 and 4.3 that raiders had lowest B P Systolic followed by all-rounder’s, corners and coverers, respectively. The post hoc test analysis revealed that the raiders and all-rounder’s was significant

lowest B.P systolic than corners and coverers kabaddi players. There was no significance difference in between corners and coverers, all-rounder’s and corners kabaddi players.

Table 4.4: Comparison of B.P Diastolic (in mg.) between Corners, Coverers, Raideres and All-rounder’s of Kabaddi players.

Kabaddi players positions	N	Mean	Std. Deviation	Std. Error	F	Sig	
B.P. Diastolic	Corner	10	82.80	4.087	.6093	9.01	.000
	Coverer	10	78.08	6.097	.9088		
	Raider	10	78.42	5.233	.7801		
	All rounder	10	78.20	4.803	.7160		
	Total	40	79.37	5.439	.4054		

Table no. 4.4 indicates the mean, Standard Deviation, S.E.M. and F ratio of It was evident from the data that there was significant different among Kabaddi players of different playing position as the value of F ratio found significant at .05 levels, therefore, post hoc test has been applied of Corners,

Coverers, Raiders and All-Rounders of Kabaddi players. It was evident from the data that there was significant different among Kabaddi players of different playing position as the value of F ratio found significant at .05 levels, therefore, post hoc test has been applied.

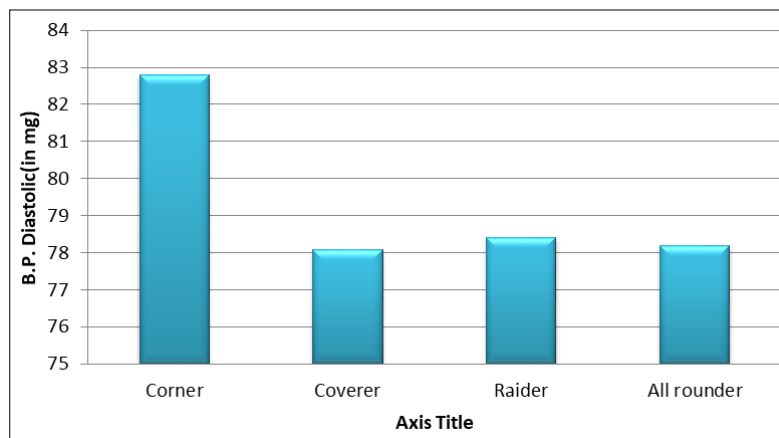


Fig 3: B P Diastolic (in mg) of Kabaddi players among different playing positions

Table 4.5: Scheffe’s post hoc values of B. P. Diastolic (in mg.) among kabaddi players of different playing position.

Mean				Mean difference	Sig
Corner	Coverer	Raider	All-rounder		
82.80	78.08			4.711*	.000
82.80		78.42		4.377*	.001
82.80			78.20	4.600*	.001
	78.08	78.42		-.3333	.992
	78.08		78.20	-.1111	1.000
		78.42	78.20	.2222	.998

It was observed from the table's no. 4.5 that coverers had lowest B P Diastolic followed by all-rounder's, raiders and corners respectively. The post hoc test analysis revealed that the coverers and all-rounder's was significant lowest BP Diastolic than raiders and corners kabaddi players. There was no significance difference in between coverers and raiders, coverers and all-rounder's and raiders and all-rounders kabaddi players.

### Conclusion

1. From the results it was evident that there was no significant difference in pulse rate among Kabaddi players playing at different positions.
2. There was significant different in B.P Systolic among Kabaddi players playing on different positions result also shows that the raiders and all-rounder's was significant lowest B.P systolic than corners and coverers kabaddi players. No significance difference in between corners and coverers, all-rounder's and corners kabaddi players
3. There was significant different in B,P. Diastolic among Kabaddi players playing at different positions. The post hoc test analysis revealed that the coverers and all-rounder's was significant lowest BP Diastolic than raiders and corners kabaddi players.

### References

1. Abstrand P, Rodahl K. Textbook of Work Physiology. New York: McGraw Hill, Kongkusha Ltd., 1970.
2. Clark HH. Application of Measurement to Health and Physical Education 3<sup>rd</sup> Ed., Englewood Cliffs, N.J., Prentice Hall Inc 1978.
3. Hirtz P. Ko-ordinative Fahigkeiten in Schul Sport (Co-ordinative Abilities in School Sports), Yolk and Wissen. Volkseigner, Verlag, Berlin 1985, 134-138.
4. Jensen CR, Hirst CC. Measurement in Physical Education. New York: 5<sup>th</sup> ed. Englewood Cliffs Prentice Hall Inc 1976.
5. Johnson BL, Nelson JK. Practical Measurement for Evaluation in Physical Education. Minneapali S: 2<sup>nd</sup> ed., Burgass Publishing Co. Journals and Theses 1983.
6. Kamlesh ML. Methodology of Research in Physical Education and Sports. New Delhi: Metropolitan Book Co. Pvt. Ltd 1994.
7. Kansal DK. Test and Measurement in Sports and Physical Education. New Delhi: D.V.S. Publications 1996.
8. Karpovich PV, Shining WE. Physiology of Muscular Activities, W.B. Saunders Company, Philadelphia 1971.
9. Larson LA. Encyclopedia of sports sciences and medicine. Mcmillan company, New York 1971, 32.
10. Maity DK. Comparison of Selected Physiological and Physical Variables between Tribal and Non-Tribal High School Students of West Bengal, Unpublished Master Thesis, Jiwaji University, Gwalior 1983.
11. Malhotra MS, *et al.* Functional Capacity and Body Composition of Indian Athletics. Indian Journal of physiological and Pharmac 1972, 16301.
12. Maragret TA. Body Structure and Design Factors in the Motor Performance of College Women, Research Quarterly 1964;35:418.
13. Mathew DK, Fox EL. The Physiological Basis of Physical Education and Athletics, W.B. Saunders Company, Philadelphia 1976.
14. Mehta Kamlesh. The Differential Response patterns of Hearts Rate, Blood Pressure and Respiration of Woman Representing Selected Sports as a Function of Graded Workload on The Treadmill and Cycle Ergo meter". Unpublished P.hd. This is Panjab University Chandigarh 1992;3(4):5.
15. Motto M. Talent search and Development. Mordern Athletic and Coach 1977;15-223-29.
16. Nataraj HV, Kumar MC. Motor Ability Variables as

- Predictors of Performance in Kabaddi, Journal of Sports and Sports Sciences, Quarterly Publication, N.S.N.I.S. Motibag, Patiala 2008;31:3.
17. Parmanik P. Physical and Physiological Variables as Predictors of Playing Ability of Badminton Players, Unpublished Ph.D. Thesis, Jiwaji University, Gwalior 2001.
18. Ross IS, Wilson KS. Foundation of Anatomy and Physiology, Churchill Livingston, London 1981.
19. Smith DJ, Roberts D, BJ. Physical physiological and performance Differences between Canadian national team and Universidad volleyball players. Journal of sports science 1992;10-2:131-38.
20. Surjit KP. Selected psychomotor performance variations among players of different sports, Unpublished Master's Thesis. LNCPE, Gwalior 1988.
21. Uppal AK. Comparative Effects of Two Duration Load Methods and Interval Running Method on Cardio-respiratory Endurance and Selected Physiological Variables, Doctoral Dissertation, Jiwaji University, Gwalior 1980.