

# A comparative study on selected physiological variables among high and low performance badminton players

■ HARSHVARDHAN DAVE

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■ **ABSTRACT**

The purpose of the study was to compare the selected physiological variables among high and low performer of badminton players with the age groups of 18 to 25 yrs. Subjects were classified under high and low category on the basis of their performance. The subjects were tested on following selected physiological variables *i.e.* vital capacity, systolic blood pressure, diastolic blood pressure, pulse rate, positive and negative breath holding capacity and peak flow rate. The result revealed that there was a significant difference found in case of vital capacity and pulse rate while insignificant in case of systolic, diastolic blood pressure, positive and negative breath holding capacity and pick flow rate. It may be concluded that the vital capacity and heart rate are the contributing variables for badminton players.

Author for correspondence :

**HARSHVARDHAN DAVE**  
Rajeev Gandhi College, BHOPAL  
(M.P.) INDIA

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Among the indoor games, badminton occupies a place of pride both as an individual as well as team sports inspite of frequent changes that have occurred in various aspects of competition pertained to the game including biomechanics, important of flexibility, technique and how nutrition affects performance. A major determination of the outcome of the game is an individual physical fitness. Physiological stress is associated with the elevated heart rate and reflects the effort expended during the short intense ball and play. The heart rate generally increases rapidly at the of the match remains educated with the tendency to increase further as the match progresses.

Total of Thirty two (16 high and 16 low performers) badminton players of 19 to 25 yrs of age from Open M.P. State Badminton tournament held in T.T. Nagar stadium, Bhopal were selected as the subjects for the study.

Subjects were classified under high and low category on the basis of their performance. The subjects were noted on selected physiological variables *i.e.* vital capacity, systolic blood pressure, diastolic positive and negative breath holding

capacity and peak flow rate (Table 1).

	Vital capacity	Systolic blood pressure	Diastolic blood pressure	Heart rate	Positive breath holding capacity	Negative breath holding capacity	Peak hour rate
N	32	32	32	323	32	32	32
Mean	3.39	133.63	84.23	71.37	37.21	20.84	527.6
Std. deviation	.52	14.82	10.84	9.29	11.69	7.12	58.50

The result of the study (Table 2 and 3) revealed that there were significant differences in vital capacity and pulse rate among high and low performers. The object result indicated that no significant differences have been revealed in SBP,DBP, PBHC,NBHC,PFR of high and low performers. Players become more adaptive of intake of air and utilized its oxygen more efficiently and effectively resulting the improvement in capacities of lungs and corded vascular system and respiratory system of high performer. The result of the study is also comparable with the study of Fracht and

**Table 2 : Descriptive statistics of high and low performer**

	Different group	N	Mean	Std. deviation
Vital capacity	H.P	16	3.57	.40
	L.P	16	3.19	.58
Systolic blood pressure	H.P	16	136.54	12.63
	L.P	16	130.45	16.61
Diastolic blood pressure	H.P	16	84.12	11.67
	L.P	16	84.36	10.14
Heart rate	H.P	16	87.95	5.44
	L.P	16	75.09	11.15
Positive breath holding capacity	H.P	16	34.41	9.92
	L.P	16	40.28	12.91
Negative breath holding capacity	H.P	16	21.38	7.08
	L.P	16	20.28	7.30
Peak flow rate	H.P	16	528.75	58.63
	L.P	16	523.67	59.72

**Table 3 : Comparison of high and low performer in relation to physiological variables**

	Performer	Mean	E-test for equality of means		
			E	DF	Sig. (2 tailed)
Systolic blood pressure	H.P.	136.54	1.40	30	.17
	L.P	130.45			
Diastolic blood pressure	H.P.	84.12	-.07	30	.94
	L.P	84.36			
Heart rate	H.P	67.96	-2.79	30	.01
	L.P.	75.069			
Positive breath holding capacity	H.P.	34.42	-1.73	30	.09
	L.P	40.27			
Negative breath holding capacity	H.P.	24.37	.52	30	.61
	L.P	20.27			
Peak flow rate	H.P	528.75	.14	30	.89
	L.P.	526.36			
Vital capacity	H.P	3.57	2.61	30	.01
	L.P.	3.19			

Joki (1964) and Nrglie *et al.* (1985) who made the scientific evaluation which determined the player performance capabilities. So, V.C. and P.R. play a major role in endurance level as contributing factor in achieving high performance.

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