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## Assessment of anaerobic capacity among different male team game players

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### Abstract

The purpose of the present study was to compare the anaerobic capacity of among different male team game players such as basketball, handball and volleyball. For this study researcher randomly selected 36 male players (basketball=12, handball=12 and volleyball=12) from Guru Ghasidas Vishwavidyalaya, Bilaspur (C.G.) and their age ranged between 17-28 years. Anaerobic capacity was measured by applying 50 meter dash run test and measure in second. The one-way analysis of variance (ANOVA) test with significant level at 0.05 was used. All statistical analysis was carried out using SPSS 16.0 version and MS Excel. The findings of the study shows that there were significant difference exists between basketball and volleyball players; between handball and volleyball players respectively but there were insignificant difference found between basketball and handball players of Guru Ghasidas Vishwavidyalaya, Bilaspur (C.G.) in compare with the anaerobic capacity. Similar studies should be carried out among different game players in India for better insight of anaerobic capacity of players.

**Keywords:** Anaerobic capacity, team game

### Introduction

The anaerobic capacity is the capacity to perform work, which is normally short term in nature, without presence of adequate oxygen. Anaerobic means without oxygen thus in anaerobic exercise a large at the required energy is obtained from the anaerobic energy sources. Anaerobic energy is required in high intensity short term exercise involving power or speed Reid & Thomson (1984)<sup>[7]</sup>.

Anaerobic capacity is the ability to mobilize energy during activities of intensive nature i.e. executing intensive work with explosive action in short duration of time, such as, bursting speed in football, basketball, kabaddi, kho-kho, hockey, take off in jumps etc. But the requirement of fitness varies from game to game Sarkar (2013)<sup>[8]</sup>.

Everyone tries to become successful by outperforming the others. Therefore, every athlete must improve his technical and tactical abilities along with conditional abilities and mental abilities. Two individual having the similar technical, tactical or psychic ability can differ in performances when there is a differences in their conditional ability Bej, Hamid & Jamal (2016)<sup>[2]</sup>.

Anaerobic power is energy that is stored in muscles and that can be accessed without the use of oxygen. There are two systems that utilize this type of power, the phosphogen system and the lactic acid system. Human beings use this form of energy in short bursts that cannot be sustained for longer than about two minutes Sharma & Ghosh (2016)<sup>[9]</sup>.

The present study assesses the anaerobic capacity among basketball, handball and volleyball players of Guru Ghasidas Vishwavidyalaya, Bilaspur (C.G.)

### Statement of the problem

The statement of the problem was stated as to examine the anaerobic capacity among different male team game players.

### Objective of the Study

- The main objective of the study to compare the anaerobic capacity among different male team game players.

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**Methodology**

For this study researcher randomly selected 36 male players (basketball=12, handball=12 and volleyball=12) were selected from Guru Ghasidas Vishwavidyalaya, Bilaspur (C.G.) and their age ranged between 17-28 years. The anaerobic capacity and different male team game players were selected as variables. Anaerobic capacity was measured by applying 50 meter dash run test and measure in second.

**Test Administration**

**50 yard dash run test**

The tester instructed subjects in advance. All subjects asked to take the position behind the starting line and wait for signal. The tester gives commands ready, steady, go. At the command go, the timers start their respective stopwatches. All subjects start running as fast as possible till you reach the finish line. As soon as the subject crosses the finish line, the respective timer switches stop the stopwatch and records the time accurate up to 0.01 second. Only one correct trial is

permitted.

**Scoring**

As soon as the subject crosses the finish line, the timer switches stop the stopwatch and recorded the time upto hundredth of a second.

**Statistical Procedure**

The data were analyzed by applying descriptive statistics and one way analysis of variance (ANOVA) among different male team game players. The level of significance was set at 0.05. Data was analyzed using the SPSS version 16.0 and MS Excel.

**Result and finding of the study**

The scores were obtained by applying anaerobic test. All the individual scores were used to compare the anaerobic capacity among different team game players.

**Table 1:** Descriptive statistics of different team game players with compare to anaerobic capacity

Variable	Games	N	Mean	Std. Deviation	Std. Error	Min.	Max.
Anaerobic Capacity	Basketball	12	6.8408	0.12652	0.03652	6.61	7.02
	Handball	12	6.7567	0.12929	0.03732	6.57	6.95
	Volleyball	12	7.0658	0.18431	0.05321	6.83	7.45
	Total	36	6.8878	0.19616	0.03269	6.57	7.45

**Table 2:** Analysis of Variance (ANOVA) of the means of different team game players with compare to anaerobic capacity

Mean			Anova Table					
Basketball	Handball	Volleyball	Sum of Variance	SS	df	MS	F	Sig.
6.8408	6.7567	7.0658	B	0.613	2	0.307	13.790*	.000
			W	0.734	33	0.022		

\*significant at 0.05 level, B = between group variance, W = within group variance.  
 $F_{0.05} (2, 33) = 3.27$

Table – 2 shows that the analysis of variance with regard to anaerobic capacity among different male team game players (basketball, handball and Volleyball) found statistically significant ( $p < 0.05$ ). Since, it was observed that the obtained F-ratio 13.790 was found statistically significant than the table value 3.27. This confirms that significant difference exists among the means of male team game players in compare with anaerobic capacity. Therefore, Post-hoc test (LSD) was applied to find out the degree and direction of difference between paired means among team game.

**Table 3:** Post hoc comparison of the means of different team game players with compare to anaerobic capacity using LSD test

(I) Team Game	(J) Team Game	Mean Difference (I-J)	Std. Error	Sig.
Basketball	Handball	0.08417	0.06087	0.176
	Volleyball	-0.22500*	0.06087	0.001
Handball	Basketball	-0.08417	0.06087	0.176
	Volleyball	-0.30917*	0.06087	0.000
Volleyball	Basketball	0.22500*	0.06087	0.001
	Handball	0.30917*	0.06087	0.000

**Fig 1:** Graphical representation of the means of different team game players with compare to anaerobic capacity

Basketball	Handball	Volleyball
6.8408	6.7567	7.0658

“ ” represents insignificant difference between the means

Fig.-2 indicates that the mean of basketball (6.8408) and handball (6.7567) players is significantly lower in comparison to the volleyball (7.0658) players and there is insignificant difference between the means of basketball and handball players. Thus, it concludes that the anaerobic capacity of the basketball and handball players is lower in comparison to that of players of volleyball.

**Discussion of the study**

The finding of the present study indicates that the anaerobic capacity is significant in comparing between basketball and volleyball players; handball and volleyball players, but there is insignificant difference found between basketball and handball players. The basketball and handball players were more anaerobic capacity than volleyball due the nature of game.

The finding of study was supported by Sharma (2016) [10], he has conducted a study on speed and agility of young basketball players and his findings shows the significant difference between district and state level basketball players on the variable speed. Hence, researcher made here an attempt to examine the various games (basketball, handball and volleyball) to compare with anaerobic capacity. Khan & Rahman (2003) [6] conducted a study on Motor fitness of Bangladesh Krira Shikkha Protishtan (BKSP) basketball players – a profile study and they observed that the basketball players had a very good status in respect of speed Ghosh (2015) [4] conducted a study on selected physical fitness components of badminton & volleyball player and the results of the study shows the significant difference between

badminton and volleyball players on 50 yard dash run test. Ashwini & Virupaksha (2014) <sup>[1]</sup> have conducted a study on motor fitness of basketball and volleyball female player and the finding revealed that there were significant differences found in speed between basketball and volleyball players also indicating the same result in their study.

### Conclusion of the study

- In compare to anaerobic capacity significant difference was found between basketball and volleyball game players.
- In compare to anaerobic capacity significant difference was found between handball and volleyball game players.
- In compare to anaerobic capacity insignificant difference was found between basketball and handball game players.

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### Reference

1. Ashwini BK, Virupaksha ND. Motor fitness of basketball and volleyball female player. *International Journal of Health, Physical Education and Computer Science in Sports*. 2014; 16(1):73-75.
2. Bej DK, Hamid MS, Jamal A. Effect of namaz and physical exercise on selected physical fitness variables among school going children. *Scientific Culture in Physical Education & Sports, Twenty first Century Publications, Patiala (PB) 2016*, 492-504.
3. Gangey O, Kerketta I. Relationship between selected motor fitness and playing ability of volleyball players. *International Journal of Academic Research and Development*. 2016; 1(6):25-26.
4. Ghosh, P. Study on selected physical fitness components of badminton & volleyball player. *International Journal of Health, Physical Education and Computer Science in Sports*. 2015; 17(1):41-43.
5. Haque A, Ghosh S. A Comparative study of Aerobic and Anaerobic Fitness between Indigenous and Non-indigenous Game Players in West Bengal. *International Journal of Multidisciplinary and Current Research*. 2014; 2:203-206.
6. Khan AA, Rahman M. Motor fitness of BKSP basketball players – a profile study. *Bangladesh Journal of Sports Science*. 2003; 2:74-80.
7. Reid JG, Thomson JM. *Exercise Prescription for fitness*. New Jersey: Prentice Hall, 1984, 204.
8. Sarkar S. A comparative study on selected fitness components between kabaddi and kho-kho players. *International Journal of Health, Physical Education & Computer Science in Sports*. 2013; 12(1):89-90.
9. Sharma RK, Ghosh SS. Effect of selected yogic practices aerobic capacity and anaerobic power of school girls. *Scientific Culture in Physical Education & Sports, Twenty first Century Publications, Patiala (PB) 2016*, 1185-1189.
10. Sharma S. A study of speed and agility of young basketball players. *Scientific Culture in Physical Education & Sports, Twenty first Century Publications, Patiala (PB), 2016*, 2166-2168.
11. Singh B, Singh S. Aerobic Endurance. *Scientific Culture*

in Physical Education & Sports, Twenty first Century Publications, Patiala (PB), 2001-2003, 2016.

12. Thomas JR, Nelson JK, Silverman SJ. *Research Methods in Physical Activity*. USA. (6<sup>th</sup> Ed.), 2005.
13. Verma JP. *Statistical methods for sports and physical education*. Tata McGraw Hill Education Private Limited, New Delhi, 2011.