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## Comparison of medium pacers and spinners in relation to their heart rate

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### Abstract

The present study was an attempt to investigate the significant mean difference between Medium Pacers and Spinners in relation to their heart rate which are participating at District level. The sample of the study comprised of 20 Medium Pacers and 20 Spinners of Jind district of Haryana state. All the players are male participants and their age ranges from 16 to 19 years. In order to test the significance of mean difference between the variables descriptive statistics was employed. The result indicates that there exists a significance difference between Medium Pacers and Spinners with respect to their Heart rate. Medium Pacers were found to be better than Spinners on this physiological variable.

**Keywords:** Heart Rate, Cricket, Medium Pacer, Spinners.

### Introduction

The study of physiology is not only interesting, but it is also extremely useful in daily life as well as in the field of sports. Every reasonable person should not only wish to acquire the knowledge how best to protect and preserve his body, but should feel a certain profound respect for an organism so nice and perfect as his physical frame. The study of physiology therefore is immensely helpful in the maintenance of our physical well-being. It is not possible to understand the physiology of our body without a prior knowledge of its anatomy. Just as it is difficult for an engineer to understand the workings of an engine unless well acquainted with all its parts and the basic knowledge of the manner in which they were fitted together. So, before understanding the principles of elementary physiology, we must master the main anatomical facts concerning the organs of the body. As sports competition create an atmosphere of psychological pressure, various organic capacities of the body such as heart rate, lung capacity, blood pressure etc. get affected, which in turn are likely to affect the performance level of individual participants or teams. Physiological factors function at the intersection of physical and biological factors. One of the important physiological variables is heart rate.

### Heart Rate:

Heart rate is usually determined from pulse rate, which is the number of pressure waves per minute along the carotid artery at the wrist. In normal individuals, heart rate equals pulse rate. The time period from one heartbeat to the next is the interval between cardiac cycles. Control of the heart rate at rest and during work is maintained by the blood entering the heart and by the heart slows down the heart rate where as the stimulation of the sympathetic nerves speeds it up. At rest, the heart rate for non athletes 72 to 75 beats per minute and for athletes, who train primarily aerobically, it is 52 to 55 beats per minute. The decreased heart rate at rest for athletes is a consequence of physical training that is carried out continuously and over a long time span. The fact that the heart rate is increased during exercise is a matter of common observation. The ease with which the pulse rate may be counted had led to a large number of investigations on the changes in the heart rate resulting from different types, intensities and duration of exercise. The maximal heart rate reached during exercise and the rapidity with which the maximal value is attained vary with a numbers of factors, including the type of exercise, the emotional content of the exercise, environmental temperature and humidity and

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the physical condition of the subject. Heart rates of more than 200 beats per minute have been reported in healthy people during exercise.

### Methodology

For this study the investigator adopted survey method to collect data related to cricket players (Medium Pacers and Spinners). The subjects of the study consist of 40 cricket players i.e. 20 Medium Pacers and 20 Spinners. The age group of cricket players ranges between 16 to 19 years. All these cricket players belong to district Jind (Haryana) only.

### Tools Used: Pulse Rate test (PR)

**Purpose:** To measure heart rate.

**Equipments:** A stop watch and a scorecard.

**Procedure:** The pulse rate of the subject measured by pressing the middle finger against the auxiliary's artery in the wrist. The beats were counted for 30 seconds. The number of beats was multiplied by 2 to get the pulse rate per minute.

**Instruction:** The subjects were asked to be relaxed. No warming up was allowed before the test.

**Scoring:** The pulse rate per minute for each subject was recorded in the score card.

**Testing personnel:** The help of one colleague was taken to conduct this test.

### Findings

The main objective of the study is to compare Medium Pacers and Spinners with respect to their Heart rate. The data collected by cricket players was arranged, tabulated and statistically analyzed. The obtained data was processed for descriptive statistics i.e. Mean, S.D and Z-ratio.

**Table 1:**

Sr. No.	Variable	Medium Pacers		Spinners		Z-ratio
		Mean	S.D	Mean	S.D	
1.	PR	70	5.84	74.52	5.86	4.015**

\*\*Significant at .01 level of confidence

Table 1 shows the results of mean scores on pulse rate test of Medium Pacers and Spinners which are 70 and 74.52 beats per minute respectively. The Z-ratio of the mean difference on pulse rate test is 4.015 in favour of medium pacers. It is significant at .01 level of confidence. Hence, the difference between the mean scores of Medium Pacers and Spinners on heart rate test is found significant. It implies that there is a significant difference between the heart rate possessed by medium pacers and spinners, which in turn implies that the medium pacers have better heart rate as compared to spinners.

### Discussion of Findings

The results suggested that the Medium pacers have better heart rate than the Spinners. The reason of this difference may be due to the longer run-up of the medium pacers as compared to their counterpart spinners. They have to run for longer durations in practice sessions as well as in the match for each and every time they bowl. Apart from that medium pacers have to field on the boundary line most of the time while spinners are preferred to field in 30 yard circle. Medium pacers have to run hard and fast for each delivery bowled by them but spinners has short, slow and smooth run-up. These may be the reasons why medium pacers have better heart rate as compared to their counterpart spinners in normal condition. Hence, there exist a significance difference between Medium Pacers and Spinners with respect to their Heart Rate.

### Conclusion

Based on the results of the present study the following conclusion is drawn:

There exist a significance difference between Medium Pacers and Spinners with respect to their Heart Rate. Medium pacers were found to be better than Spinners on this physiological variable.

### Implications

The findings of the study have a number of implications for coaches, physical education teachers, trainers and cricket players.

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