



ISSN: 2456-0057

IJPNPE 2022; 7(2): xx-xx

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www.journalofsports.com

Received: 14-09-2022

Accepted: 16-11-2022

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Short-term effect on systolic blood pressure while medium-fast bowling in practice condition

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Abstract

In this study of 20 male medium-fast bowlers, the short-term impact of bowling during practise sessions on systolic blood pressure levels was looked at. The subjects were selected from the Maharaja Yeshwantrao Cricket Club in Indore using a purposeful selection strategy and factoring in the participants' willingness to participate. The participants were all active, seasoned athletes who had played sports for at least five years. A Dr. Morepen Bp02 Automatic Blood Pressure Monitor was used to assess the systolic blood pressure both before and throughout the bowling session. Systolic blood pressure was checked twice: once before bowling and once again during play. The paired samples t-test method were used in the study. For the comparison, a significance level of 0.05 was chosen. The statistics show that systolic blood pressure considerably rose while bowling as compared to systolic blood pressure before to bowling. It was discovered that bowling on a reasonably sunny day could result in a significant increase in systolic blood pressure.

Keywords: Bowling, cricket, medium-fast, systolic blood pressure

Introduction

Cricket is one of the most challenging and well-liked team sports in the world. Similar to baseball, it is a bat-and-ball game that is often played outside on grassy fields. Cricket bowlers work to prevent the batter from scoring because they know that the batter wants to score as many runs as they can during the game. As a result, both abilities are essential in this game. Bowling can be divided into two basic categories: pace and spin. Pace bowling comes in a variety of styles, such as fast bowling, medium-quick bowling, slow-pace bowling, etc. An enormous amount of force must be generated quickly when bowling explosively (Debabrata Sarkar & Dr. Mahesh Singh Dhapola, 2022) [2].

For boys 20 to 24 years old, the normal systolic blood pressure range is 105-140. (Master, 1950; Robinson, 1939) [3, 6]. Systolic blood pressure rises while people exercise. Systolic blood pressure measures blood vessel pressure during heartbeats (Pickering, 1982) [5]. The blood vessel pressure in between heartbeats is measured using diastolic blood pressure. It doesn't substantially alter throughout the activity. Therefore, diastolic values were not considered in the study.

Because everyone's blood pressure is different, it is challenging to pinpoint what levels are regarded as healthy after activity. Normal levels for one person may be a warning sign that something is wrong (Weatherspoon, 2018) [8].

Running, cycling, and other aerobic exercises tax your heart and circulatory system more. You need to breathe more quickly since your muscles require more oxygen than they do while you're at rest (Palatini *et al.*, 1989) [4].

In order to circulate blood and provide oxygen to your muscles, your heart starts to pump more vigorously and fast. Systolic blood pressure therefore increases. After exercise, systolic blood pressure normally increases to between 160- and 220-mm Hg (Weatherspoon, 2018) [8].

To investigate the aforementioned phenomenon, a one-shot study design was utilised to compare systolic blood pressure before and after medium-fast bowling sessions.

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Research Methodology

Purposive sampling was used to choose 20 male medium-fast bowlers from the Indore-based Maharaja Yeshwantrao Cricket Club for the study. Active athletes made up each and every participant. All of the bowlers had competed in events at the state level or higher and had at least five years of playing experience. Ages of the participants ranged from 20 to 24. The goal of the study was to compare blood pressure readings before and after a medium-speed bowling session. The researchers used a Dr. Morepen Bp02 Automatic Blood Pressure Monitor to measure systolic blood pressure before and after the bowling sessions. The aforementioned product is really trustworthy and well-liked in India (Sodhi, 2022) [7]. Each person's physical fitness and willingness to participate in the test were verified prior to the exam.

Test Administration

From 7:00 AM to 07:45 AM IST on a morning with a decent amount of sunshine, the test was conducted on a grassy cricket field. A temperature range of 23 to 25 degrees Celsius was measured in the test location. Systolic pre-blood pressure was obtained before the warm-up. Following that, the participants had a 5-minute warm-up that consisted of jumping jacks, brisk walking, and muscle stretches. Stretching

focused on the primary muscles utilised in medium-fast bowling, including the anterior deltoid, pectoralis major, latissimus dorsi, trapezius, teres major, bicep brachii, and tricep brachii (Ahamed *et al.*, 2014) [1]. After that, they continued bowling continuously for 30 minutes at a medium speed. Between 25 and 30 minutes into the bowling session, the apparatus was utilised to take an individual systolic blood pressure reading for each patient. On paper sheets, the data was manually input and recorded. After the test, the subjects were instructed to do the stretching exercises.

Statistical Techniques

A paired samples t-test with a significance level of 0.05 was employed as the statistical technique to compare Before-BP with During-BP.

Analysis of Data

To determine if there was a difference between pre-bowling session and during-bowling session readings, systolic blood pressure data was examined. The descriptive statistics' means and standard deviations were calculated. Additionally, the paired samples t-test was used to assess the significance of the difference between the Pre-bowling session and During-bowling session data.

Table 1: Descriptive Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Before- Blood Pressure	122.20	20	8.427	1.884
	During-Bowling Blood Pressure	135.90	20	11.742	2.626

In above table, a descriptive statistical study of systolic blood pressure readings before and during bowling session is

presented.

Table 2: t-test statistics Paired Samples Test

		Paired Differences							
		95% Confidence Interval of the Difference							
		Mean	Std. D	Std. Error Mean	Lower	Upper	t	df	Sig. (2-tailed)
Pair 1	Before-Bowling blood Pressure-During Bowling Blood Pressure	-12.700	9.114	2.038	-16.965	-8.435	-6.232	19	.000

In above table, the t-test results that distinguish between blood pressure before bowling session and blood pressure during bowling session are presented.

Discussion of finding

The t-test results are displayed in Table 2. Because the post-test scores were higher than the pre-test scores, the mean difference (mean of Before-Bowling Blood Pressure - During-Bowling Blood Pressure) was negative at 12.700. The correlated difference standard error of the mean is 2.038, while the standard deviation of differences between pairs of variables is 9.114. The t statistic's value is 6.232, and with 19 degrees of freedom (N 1), the Sig. value of.000 denotes that there is a less-than-.001 chance that this connection could have happened by chance if the null hypothesis were true. Therefore, based on the blood pressure readings taken during bowling, we can infer that the systolic blood pressure greatly increased.

Exercise can raise blood pressure, although the effects are frequently fleeting. After the workout, the blood pressure should gradually return to normal. A person's health is deemed to be in better shape if their blood pressure returns to normal more quickly (Weatherspoon, 2018) [8].

Conclusions

Systolic blood pressure taken before bowling was discovered

to be substantially lower than that taken during the game. Thus, it may be concluded that systolic blood pressure may increase during a medium-fast bowling net session on a relatively sunny day.

To obtain a more precise measurement of the systolic blood pressure, the study might benefit from better experimental conditions and a more controlled control of the auxiliary variables. It is possible to conduct comparable research on female medium-fast bowlers as well, given that the study's sole participants were male medium-fast bowlers. For temperature ranges that are different, as in the winter, a similar study can be conducted. Despite the fact that indoor circumstances can also be considered, this experiment was carried out outside. Athletes of all ages can be researched as well.

References

- Ahamed NU, Sundaraj K, Ahmed B, Rahman M, Ali M, Islam MA. Relevance of the Upper Limb Muscle Electromyographic analysis in Cricket Bowlers: Recommendations from Research on Overhead-Throwing athletes. *Journal of Mechanics in Medicine and Biology*. 2014;4(4):1430005.
- Debabrata Sarkar, Dr. Mahesh Singh Dhapola. Effects of Core Training on Selected Physical and Physiological Fitness of Male Medium Fast Bowlers in Cricket. *EPR*

International Journal of Multidisciplinary Research (IJMR); c2022. p. 134-140.

3. Master AM. The Normal Blood Pressure Range and its Clinical Implications. *Journal of the American Medical Association*. 1950;143(17):1464.
4. Plantini P, Mos L, Mormino P, Di Marco A, Munari L, Fazio G, *et al.* Blood Pressure Changes During Running in Humans: The “beat” phenomenon. *Journal of Applied Physiology*. 1989;67(1):52-59.
5. Pickering TG. Blood Pressure during Normal Daily Activities, Sleep, and Exercise: Comparison of Values in Normal and Hypertensive Subjects. *JAMA*. 1982;247(7):992.
6. Robinson SC. Range of Normal Blood Pressure: A Statistical and Clinical Study of 11,383 Persons. *Archives of Internal Medicine*. 1939;64(3):409.
7. Sodhi M. 11 Best Blood Pressure Machines In India. *Pharmacy. In*; c2022, May 5. <https://pharmeasy.in/blog/11-best-blood-pressure-machines-inindia/#:~:text=Buy%20now,BPL%20B3%2012%2F80%20BP%20MONITOR,Reading%20of%20your%20blood%20pressure.>
8. Weatherspoon D. How Does Exercise Affect Blood Pressure?; c2018. [https://www.healthline.com/health/blood-pressure-after-exercise.](https://www.healthline.com/health/blood-pressure-after-exercise)