

## Comparison of Cardiac Output of Cricket Players before and after Step Test according to their Playing Positions

Lokendra Bahadur Kathayat and Ashok Kumar

### Abstract

**Aims:** The purpose of this study was to compare the cardiac output of cricket players before and after step test according to their playing positions. **Materials and Methods:** There was one hundred fifty (N=150) trained male cricketers between the ages of 15 and 25 years volunteered for this study. Anthropometric rod, Weighing machine were used. Blood pressure was recorded with a digital sphygmomanometer according to the standardized protocol recommended by World Health Organization. **Results:** The mean age, height weight and BMI (body mass index) of batsman cricketer was 17.75±2.88 year, 171.00±6.56 cm, 57.00±8.80 kg and 19.42±2.22 kg/m<sup>2</sup> respectively. The mean age, height weight and BMI (body mass index) of fast-bowler cricketer was 18.06±2.43 year, 172.68±7.50 cm, 59.16±8.99 kg and 19.84±2.99 kg/m<sup>2</sup> respectively. The mean age, height weight and BMI (body mass index) of spinner cricketer was 17.88±2.93 year, 169.40±8.94 cm, 56.32±10.45 kg and 19.54±2.87 kg/m<sup>2</sup> respectively. The mean age, height weight and BMI (body mass index) of batsman/wicketkeeper cricketer was 18.08±3.47 year, 172.75±8.30 cm, 58.67±10.34 kg and 19.56±2.47 kg/m<sup>2</sup> respectively. The mean age, height weight and BMI (body mass index) of all-rounder cricketer was 17.26±1.74 year, 170.81±7.74 cm, 56.89±10.10 kg and 19.42±2.71 kg/m<sup>2</sup> respectively. The mean cardiac output (at rest) of batsman, fast-bowler, spinner, batsman/wicketkeeper, all-rounder cricket players was 6.28±1.08 (ml/min), 6.06±0.99 (L/min), 6.27±1.28 (L/min), 6.31±1.48 (L/min) and 6.07±1.01 (L/min) respectively. **Conclusion:** It was concluded that the cardiac output was significantly increased substantially, up to 23 percent after step test than at rest of cricket players. The maximum mean cardiac output at rest was of Spinner. After step test, the maximum mean cardiac output was of all-rounder. The trained cricketers were able to increase their SBP with relatively lower heart rates. Cricketers were also having much lower resting heart rates and their heart rates reached to basal levels more quickly after step test. The DBP response between the resting and after step test did not differ much. This shows that regular physical training has beneficial effect on the body's cardiovascular system by making it better adapt to situations of demand like physical exercise.

**LokendraBahadurKathayat**  
Ph.D. Scholar  
Department of Sports Science  
Punjabi University (Patiala) Punjab, India.  
Email: lukskathayat@gmail.com

**Ashok Kumar**  
Professor  
Department of Sports Science  
Punjabi University (Patiala) Punjab, India.  
Email: akashokin@gmail.com

**Key words: BMI, Cardiac output, Heart Rate, Stroke Volume, Blood Pressure**

DOI: 10.18376/jesp/2019/v15/i1/111314

### Introduction

Nowadays cricketers undergo extreme training to be in highest state of physical fitness. Blood pressure is one the most important hemodynamic variable and is often used to identify the fitness