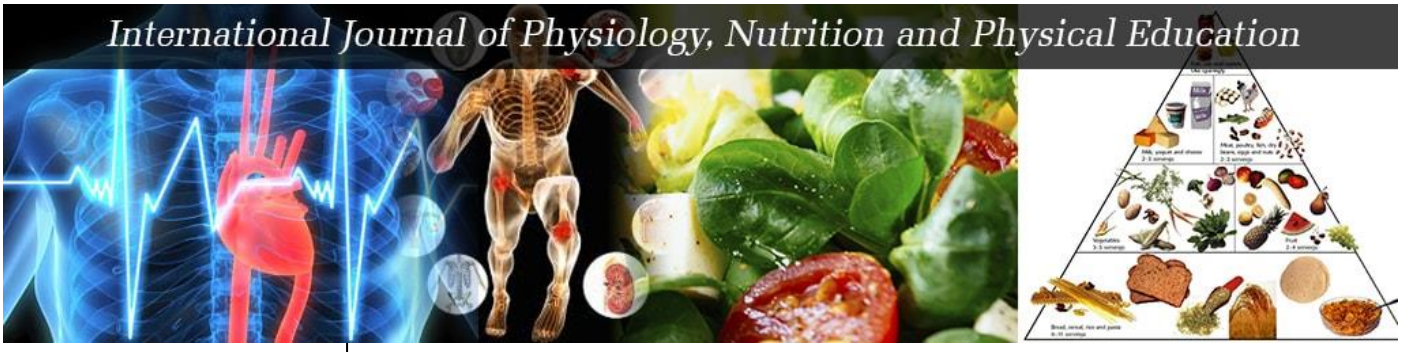

ISSN: 2456-0057
IJPNPE 2018; 3(2): 1148-1149

www.journalofsports.com
Received: 18-05-2018
Accepted: 22-06-2018

Anindya Bhowmik
1. Guest Lecturer, Department of Physical Education, Seva Bharati Mahavidyalaya, Jhargram, West Bangal, India
2. Research Scholar, Department of Physical Education, SV Subharti University, Uttar Pradesh, India

Arijit Bera
1. Guest Lecturer, Department of Physical Education, Tamralipta Mahavidyalaya, Purba Medinipur, West Bangal, India
2. Research Scholar, Dept. of Physical Education, SV Subharti University, Uttar Pradesh, India

Corresponding Author:
Anindya Bhowmik
1. Guest Lecturer, Department of Physical Education, Seva Bharati Mahavidyalaya, Jhargram, West Bangal, India
2. Research Scholar, Department of Physical Education, SV Subharti University, Uttar Pradesh, India

Correlation between cardiovascular endurance and peak expiratory flow rate of university players

Anindya Bhowmik and Arijit Bera

Abstract
Background: The cardiovascular endurance is the ability of heart, lungs and muscles work together effectively to prolong period. It varies person to person due to exercises and activity. The aim of the study was to examine the relationship between cardiovascular endurance and peak expiratory flow rate of University level cricket and volleyball players.
Methodology: The 14 cricket and 12 volleyball male players were included from East Zone Inter-University sports teams of Vidyasagar University, West Bengal. Cardiovascular endurance was measured by 600 yards run and walk test and peak expiratory flow rate was measured by peak flow meter. The Pearson correlation of coefficient and independent t-test was applied and level of significant was set at $p<$ 0.05.
Result: The result showed insignificant relationship between cardiovascular endurance and peak expiratory flow rate of University level cricket and volleyball players.
Conclusion: The better cardiovascular endurance and peak expiratory flow rate were found in volleyball players than the cricketers and study also assumed may have significant relationship between cardiovascular endurance and total lungs capacity of the cricket and volleyball players.

Keywords: Cardiovascular endurance, peak expiratory flow rate, cricket, volleyball, university level players

1. Introduction
Cardiovascular fitness is one of the most important components of overall physical fitness. It refers the ability of the heart, lungs and blood vessels to supply a sufficient amount of oxygen and nutrients to the cells to meet demands of activities, characterized by moderate contraction of large muscle group over prolonged or longer period of time. The peak expiratory flow rate is a person's maximum speed of expiration, as measured with a peak flow meter, a small, hand-held device used to monitor a person's ability to breathe out air. It measures the air flow through the bronchi and thus the degree of obstruction in the airways. The individual's performance levels depend of their heredity, environment, professions and exercises. Where research finds basketball players were better speed comparing than the hockey and Football players. Cardio respiratory endurance was better football players comparing than the basketball and hockey players (Karthi, 2014) [2]. The physical fitness of football players has better then volleyball players (Keshev, 2014) [3]. However some study showed there have positive and significant correlation between maximal aerobic power and forced vital capacity of soccer players (Goual, 2014). The study reported a positive relationship between ventilator capacity and aerobic capacity (Collins, & Roberts, 2009). Whereas significant correlation found between maximum aerobic power and forced vital capacity among soccer players (Mahammed, 2017) [5].

1.1 Objective of the Study
a. To compare the cardiovascular endurance and peak expiratory flow rate between University level cricket and volleyball players
b. To examine the relationship between cardiovascular endurance and peak expiratory flow rate of University level cricket and volleyball players

2. Methodology

2.1 Subjects: Total 26 male University level players were included from the Vidyasagar University, West Bengal, India. The 14 were cricketers and other 12 were volleyball players of East Zone Inter University respective team's members in year of 2017.

2.2 Measurement: The cardiovascular endurance (CVE) was measured by 600 yards run and walk test. The test was conducted in playground of Vidyasagar University. The appropriate procedure was followed (Johnson, & Nelson, 1988) and score was recorded in duration in minutes and seconds.

The peak expiratory flow rate (PEFR) was measured by peak flow meter. The test was conducted in standing position. The participants was instructed was properly placed mouth pieces of the instrument in between the lips followed by deep breath as possible, then breath out forcefully within the mouth. Nose clip was used to confirm that the air not escape through the nose. The data was recorded in litre/minute.

2.3 Statistical Analysis: The pearson correlation of coefficient and independent t-test was applied and level of significant was set at $p< 0.05$.

3. Result

Table 1: (Comparison of PEFR & CVE between Cricketer and Volleyball Players)

Variables	Cricket (n=14)		Volleyball (n=12)		T-value	P-value ($p< 0.05$)
CVE	Mean	SD	Mean	SD	2.78	0.01
	1.45	0.08	1.34	0.12		
PEFR	666.07	44.81	703.75	25.50	2.80	0.01

Abbreviation: CVE-Cardiovascular Endurance, PEFR-Peak Expiratory Flow Rate.

The table-1 has represented comparison of CVE and PEFR between cricket and volleyball players of University level. The CVE of cricketers were 1.45 minutes and volleyball players were 1.34 minutes and PEFR of cricketers were 666.07 l/min and Volleyball players were 703.75 l/min. The result shows the CVE and PEFR between cricket and volleyball players was significant difference and both were significantly better in volleyball players.

Table 2: (Correlation between PEFR and CVE of University Level Players)

Group	Variables		Correlation	P-value ($p< 0.05$)
Cricket (n=14)	CVE	PEFR	0.07	p>0.05
Volleyball (n=12)	CVE	PEFR	0.08	p>0.05

Abbreviation: PEFR-Peak Expiratory Flow Rate, CVE-Cardiovascular Endurance

Table 2 has shown result of correlation between CVE and PEFR of University level players. That indicates there was no significant correlation between CVE and PEFR of University level cricketers and volleyball players.

4. Discussion

The study found insignificant correlation between CVE and PEFR of university level cricketer and volleyball players. The study of (Collins, & Roberts, 2009) reported a positive relationship between ventilator capacity and aerobic capacity. The same as previous studies found significant correlations between maximal aerobic power and forced vital capacity of soccer players (Goual, 2014) [1]. The overall pulmonary function showed insignificant correlation with body composition of Iranian premier soccer league referees (Mazaheri et al, 2016) [4]. Significant correlation was found between maximum aerobic power and forced vital capacity of soccer players (Mahammed, 2017) [5].

But study also found that the CVE and PEFR were significantly higher in volleyball players compared to cricketers. This result has same as studies of (Keshav, 2014) found physical fitness of footballers was better than volleyball players. The cardiovascular fitness was better in footballer compared to basketball player (Karthi, 2014) [2].

5. Conclusions

The study has concluded that

1. There was no significant correlation between cardiovascular endurance and peak expiratory flow rate of University level cricketers.
2. There was no significant correlation between cardiovascular endurance and peak expiratory flow rate of University level volleyball players.
3. The better cardiovascular endurance was found in University level Volleyball players compare to cricketers.
4. The better peak expiratory flow rate was found in University level Volleyball players compare to cricket players.

The study also assumed may have significant relationship between cardiovascular endurance and total lungs capacity of the cricketers and volleyball players.

6. References

1. Goral K. The Examination of The Relationship between Maximum Aerobic Power, Forced Vital Capacity and Body Composition in Soccer Players. Nigde University Journal of Physical Education and Sport Sciences. 2014; 8(2):172-179.
2. Karthi SR. Krishnakanthan S. Comparative Analysis of Selected Physical Variables Among Football Hockey and Basketball Players. Paripex - Indian Journal of Research. 2014; 3(8):157-158.
3. Keshav K, Harmandeep S. Comparative Study of Physical Fitness Variables of male Volleyball Players and Football Players. Research Journal of Physical Education Sciences. 2014; 2(1):5-7.
4. Mazaheri R, Halabchi F, Barghi TS, Mansournia MA. Cardiorespiratory Fitness and Body Composition of Soccer Referees; Do These Correlate With Proper Performance? Asian J Sports Med. 2016; 7(1):e29577.
5. Mohammed Z. Maximal Aerobic Capacity Versus Vital Capacity Which Cassel Relationships Determine The Cardiorespiratory Fitness among Soccer Players. Turk J Kin. 2017; 3(3):49-53.
6. Johnson BL, Nelson JK. Practical Measurements for Evaluation in Physical Education. Third Edition, New Delhi: Surjeet Publication, 1988.