



ISSN: 2456-0057

IJPNPE 2018; 3(1): 2284-2285

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www.journalofsports.com

Received: 14-11-2017

Accepted: 12-12-2017

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A comparative study of selected physiological dimension between state level and national level male football players

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Abstract

The aim of study was to compare physiological dimensions (Vital Capacity, Pulse Rate and Peak Flow) between state level and national level male football players. To achieve the objectives of the study thirty (N=30) state level football boys and thirty (N=30) national level football boys were selected randomly as subjects of the study. The age of the subjects ranged between 15-21 years. To determine the significant difference between state level and national level football players on selected physiological dimension 't' test was employed. The level of significance was set at 0.05. Results of the study revealed that there were significant differences obtained on physiological dimension (Vital capacity, Pulse Rate, Peak Flow and Maximum Voluntary Ventilation) between State level football players and National level football players.

Keywords: physiological dimensions, vital capacity, pulse rate, peak flow, maximum voluntary ventilation, football

Introduction

Today the sports persons are trained scientifically with the latest training methods and sophisticated instruments for higher performance improvement in different sphere of sports. The level of physical fitness indicates the amount of physical work that a person capable of doing besides the energy for desirable characteristics of muscle function for skilful movement as required in specific sports (John F, 2005) ^[1]. Luciana *et al.* (2008) ^[2] analyzed anthropometric and physiological characteristics of 146 former elite volleyball players in Italy. The possible effect of an active or inactive lifestyle on ageing was assessed by comparing the biological profiles of sub-samples of former athletes with and without regular sport activity. The results showed that the former players differ from current players in several anthropometric and physiological traits. Pyorala *et al.* (1968) ^[3] conducted a pulmonary function test on 57 former champion endurance runners or cross-country skiers and 53 non-athletes of the same age group. Results showed the former athletes differed from the control subjects by having a larger vital capacity and total lung capacity. Maximum voluntary ventilation tended to be greater in athletes than in control subjects. Maximum voluntary ventilation showed a significant negative correlation to age in healthy controls and athletes. Barlett and Mance (1984) ^[4] conducted a study to determine expiratory reserve volume, vital capacity, in lean female athletes within members of two collegiate women's teams: gymnastics and track. The runners provided a control group by being similar to gymnasts in age, weight, expiratory reserve volume, expressed as a percent of vital capacity was significantly less in the gymnasts as compared to the runners. Lakhera *et al.* (1984) ^[5] carried a study to evaluate pulmonary functions in Indian athletes and sportsmen associated with different athletic events and games. It was found that swimmers were having significantly higher vital capacity and forced expiratory volume values than all other athletic groups. Mehrotra *et al.* (1998) ^[6] carried a study on sportsmen engaged in various sports i.e. football, hockey, volleyball, swimming, basketball and compared with each other and with the controls. Pulmonary parameters such as forced vital capacity, forced expiratory volume and peak expiratory flow rate measured. The results indicated that all the sportspersons had higher values of lung functions than the controls.

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Methodology

Subjects have been randomly selected for the study. The age ranged from 15-21 years for the subjects, total number of subjects was 60 football players from Jammu region. The investigators selected (N=30) state level and (N=30) national level football male players in the consultation with experts and considering tester's competency. The physiological dimensions were selected for study namely Vital Capacity, Pulse Rate, Peak Flow and Maximum Voluntary Ventilation. Spiro-meter had been used to measure the various capacities of lungs.

Results

Table 1: Show comparison between state level and national level college boys on selected physiological dimensions

Variable	Group	Mean	SD	T ratio
Vital Capacity mL	State	3.34	0.25	4.48*
	National	3.71	0.31	
Pulse Rate	State	75.60	2.52	1.91
	National	74.15	3.02	
Peak flow (L/min)	State	349.32	80.10	2.45*
	National	406.10	79.30	
Maximum Voluntary Ventilation (L/min)	State	156.20	23.10	3.43*
	National	162.20	24.32	

The comparison between state level and national level college boys on selected physiological dimensions (Vital Capacity, Pulse Rate, Peak Flow and Maximum Voluntary Ventilation) were statistically analyzed using 't' test. Table 1: depicts that the mean score of vital capacity of state level and national level football players was 3.35 and 7.82 respectively, in case of pulse rate the mean scores were 75.80 and 74.26 for state level and national level players, respectively. The mean value of peak flow was 84.90 and 78.14 for state level and national level football players. The mean value of peak flow was 156.20 and 162.20 for state level and national level football players respectively.

Discussion and Conclusion

The result of 't' value showed significant differences in relation to Vital Capacity, Pulse Rate, Peak Flow and Maximum Voluntary Ventilation between state level football players and national level football players, where national level football, players were found superior in the physiological dimension than state level football players. The result concluded that there was a significant difference found between state level and national level male football players on the account of vital capacity and peak flow and maximum voluntary Ventilation. Finding of this study suggest that the national level players were significantly better than state level players for the long term matches without less fatigue than state level players than may also had better than state level football players. Similar studies can be conducted among females and also in different sports and games to find the physiological dimensions of sports persons. Further this study can be conducted in different sports and games to find the importance of these parameters in the performance of an athlete.

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