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Blood Pressure between High Performer and Low Performer Athletes Engaged in Different Games: A Comparison

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Abstract:

The purpose of the study is to compare the blood pressure between high performer and low performer athletes with the age groups of 18 to 25 years. For this study, a sample of sixty four (N=64) athletes engaged in different games i.e. high performer (N_1=32: mean ± SD: height 171.90 ± 6.40 cm and weight 62.77 ± 8.80 kg) and low performer athletes (N_1=32: mean ± SD: height 167.50 ± 9.08 cm and weight 67.89 ± 26.58 kg) were selected from Post Graduate Govt. College, Sector-46, Chandigarh, affiliated to Panjab University, Chandigarh, India. The blood pressure of the subjects was recorded by digital sphygmomanometer. The independent samples t-test was used to assess the difference of blood pressure between high performer and low performer athletes. The result of the study indicated that there were no statistically significant difference found in systolic and diastolic blood pressure between high performer and low performer athletes.

Keywords: *Blood Pressure, High performer, Low performer and Athletes.*

Introduction:

High performer athletes have better cardiovascular fitness than their low performer counterparts. This commonly leads to a lower blood pressure as the cardiovascular system of high performer athletes works more efficiently. Blood pressure value less than 120/80 mmHg is considered optimal for all adults. It is suggested that regular physical activity in any form beneficial for cardiovascular fitness. Joshi and her co-researchers (2012) observed that sportspersons have significantly lower systolic and diastolic blood pressure as compare to non-sportspersons. Hagberg et al. (2000) supported that exercise training is an important initial step that is highly efficient in the treatment of individuals with mild to moderate elevations in blood pressure. Furthermore, fitness levels are known to association with blood pressure in adolescents and

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young adults (Kannel and Gordon, 1978: Hagberg et al., 2000). Alpay and his co-workers (2008) also indicated that the children from a school sports team have lower blood pressure values than sedentary students. Some previous studies conducted on high performer and low performer players in relation to physical fitness parameters (Kumar et al., 2013) and physiological parameters (Dave, 2013; Chahar, 2014). Therefore, the purpose of the present study was to find out the blood pressure differences between high performer and low performer athletes.

Materials and Methods:

Subjects: A sample of sixty four (N=64) athletes engaged in different games, high performer athletes (N_1=32: mean ± SD: height 171.90 ± 6.40 cm and weight 62.77 ± 8.80 kg) and low performer athletes (N_1=32: mean ± SD: height 167.50 ± 9.08 cm and weight 67.89 ± 26.58 kg) of age group 18-25 years were selected from Post Graduate Govt. College, Sector-46, Chandigarh affiliated to Panjab University, Chandigarh, India. Classifications of athletes were done as per their sports achievement i.e medal winner and non medal winner. Medal winner athletes considered as high performer and non medal winner athletes considered as low performer athletes as subjects for the present study.

Methodology: All the subjects were assessed for height, weight and systolic and diastolic blood pressure. The height of the subjects was measured with anthropometric rod in cm. The weight of subjects was measured by weighing machine in kg. Resting systolic and diastolic blood pressure was recorded over right brachial artery by using digital sphygmomanometer.

Statistical analyses: Values are presented as mean values and SD. Independent samples t tests were used to analyses the data. Data was analyzed using SPSS and the results were considered statistically significant where p values were less than 0.001.

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Results:

Table-1: Comparison of resting systolic blood pressure and diastolic blood pressure between high performer and low performer athletes.

Variables	High Performer Athletes (N_1 = 32)		Low Performer Athletes (N_2 = 32)		t-value
	Mean	SD	Mean	SD	
Systolic Blood Pressure (mmHg)	123.40	11.02	118.31	12.34	1.74
Diastolic Blood Pressure (mmHg)	72.15	7.14	71.28	9.18	0.425

Table-1: depicts the comparison of resting systolic blood pressure and diastolic blood pressure between high performer and low performer athletes.

Systolic Blood Pressure

In high performer athletes mean systolic blood pressure was 123.40±11.02 mmHg and 118.31±12.34 mmHg in low performer athletes. There was no statistically significant difference found in systolic blood pressure between high performer and low performer athletes.

Diastolic Blood Pressure

In high performer athletes mean diastolic blood pressure was 72.15±7.14 mmHg and 71.28±9.18 mmHg in low performer athletes. There was no statistically significant difference found in diastolic blood pressure between high performer and low performer athletes.

Discussion:

In this study, statistically no significant difference was found between high performer and low performer athletes in relation to systolic blood pressure and diastolic blood pressure. Berge and his co-workers (2015) identified men and women of aged group 18 - 40 years, from varied sports disciplines and observed that strength-trained athletes had higher systolic and diastolic blood pressure than endurance-trained athletes. In our study high performer athletes mean systolic blood pressure was 123.40±11.02 mmHg and in low performer athletes was 118.31±12.34 mmHg. The diastolic blood pressure was 72.15±7.14 mmHg in high performer athletes and 71.28±9.18 mmHg in low performer athletes. These values of systolic and diastolic blood pressure were lower than the previous study carried out by Chahar (2014) on all India inter-

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university high and low performer squash players. The systolic blood pressure of high performer squash players was 136.75±13.05 mmHg and low performer squash players was 126.95±15.99 mmHg whereas the diastolic blood pressure of high performer squash players was 83.60±12.38 mmHg and low performer squash players was 81.60±9.91 mmHg. There was no statically significant difference found between the high performer and low performer squash players in both systolic blood pressure and diastolic blood pressure. Therefore, the results of the present study were accord with the study of Chahar (2014). But our findings are disagreement with the study of Kaur and Singh (2016) they indicate that there was significant difference between high and low performer male cricket players with regard to systolic and diastolic blood pressure. In one another study of Dave (2013), on high and low performer badminton players evaluated that high performer badminton players were significant better in vital capacity and pulse rate parameters as compare to low performer badminton players whereas no significant difference was found in other selected physiological variables between high and low performer badminton players.

Conclusions:

There were insignificant differences in blood pressure between the high and low performer athletes. More data would be helpful on the above studied blood pressure profile along with other physiological variables to measure relationship among high and low performer athletes.

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