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A study of blood pressure and pulse rate between contact and non-contact games

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Abstract

The purpose of the present study was to compare blood pressure and pulse rate between selected national level male players of contact and non-contact games. To achieve the objective of the study, 120 national level male players (three contact games and three non-contact games, 20 from each game) from Chandigarh were selected as subjects of the study by using purposive sampling technique. The age of the subjects ranged between 19-25 years. To find out the significant differences between selected national level male players of contact and non-contact games, 't' test was used with the help of SPSS software. The level of significance was set at .05. Results of the study revealed that there was significant difference obtained on pulse rate and no significant difference found on blood pressure (systolic and diastolic) between national level male players of contact and non-contact games. Contact game national level players demonstrated significantly better than non-contact game national level players on pulse rate

Keywords: Blood pressure, pulse rate, contact games and non-contact games

Introduction

Performance is a complex phenomenon and made up of several factors such as physical performance factors, structural factors and psychological factors physiological factors such as blood pressure, vital capacity, pulse rate, lung capacity etc. are also influence individuals performance. Since different activities make different demands on the organism relating to neurological, respiratory, circulatory, metabolic and temperature.

Studies provide evidence that physiological components effects individuals' capacity for exercise, training and performance. During aerobic exercise, systolic blood pressure increases with increasing intensities, while the diastolic blood pressure response remains near resting values and decrease slightly (Ekelund & Holmgren, 1976). A linear relationship exists between heart rate and exercise intensity. Sedentary college- age- individuals might be able to consume about 40 ml O₂/kg/min, while world class cross-country skiers might plateau at 70 to 80 ml O₂/kg/min (Kamen, 2001). Studies tell us that blood pressure has a positive relationship with training. Athlete with aerobic training will have lower blood pressure during rest and sub maximal intensity workout. Blood pressure increases up to 200 mmHg for systolic and 80 mmHg for diastolic pressure during maximum intensity. On the other hand, resistance training involving heavy exertion increases both systolic pressure up to 250 mmHg and diastolic pressure up to 150 mmHg. Level of blood pressure varies according to type of training. According to reviewed studies, when heart beats it pumps a quantity of blood in arteries that cause a pulse or shock waves with arteries' wall called pulse. Pulse rate is occurs with each beat of the left ventricle that creates a pressure wave. A fit person will have lower pulse rate. Pulse rate also reduced with regular aerobic capacity.

Objectives of the study

The objectives of the study were to compare blood pressure (systolic blood pressure and diastolic blood pressure) and pulse rate between selected national level male players of contact and non- contact games.

Materials and Methods

For the purpose of the study, sixty (N=60) national level male players of contact games

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(football =20, hockey =20 and basketball=20) and sixty (N=60) national level male players of non-contact games (volleyball=20, cricket=20 and baseball=20) from Chandigarh were selected as subjects of the study by using purposive sampling technique. To assess blood pressure and pulse rate of the subjects, Perfecxa TM Fully Automatic Upper Arm Blood Pressure Monitor (MC 100F) was used. To find out the significance differences among national level players on physiological variables namely systolic blood pressure, diastolic blood pressure and pulse rate, 't' test was applied with the help of SPSS software. For testing hypothesis, the level of significance was set at 0.05.



Fig 1: Illustration of Blood Pressure and Pulse Rate Measurement

Results

The comparison of scores on systolic blood pressure and diastolic blood pressure between contact and non-contact games is presented in table -1.

Table 1: Comparison of Scores on Systolic And Diastolic Blood Pressure Between Contact And Non-Contact Games

Variables	Groups	Mean	SD	MD	SE	't'
BP Systolic	Contact	126.1333	19.05164	1.050	2.45956	.348
	Non-Contact	127.1833	13.53024			
BP Diastolic	Contact	74.1667	14.94755	4.00	1.92972	1.523
	Non-Contact	78.1667	13.79163			

*Significant at.05 level
't'.05 (118) = 1.98

Table 1 clearly indicates that there were no significant differences between national level male players of contact and non-contact games on systolic blood pressure and diastolic blood pressure since the obtained 't' values at 0.05 level were .348 (systolic blood pressure) and 1.523 (diastolic blood

pressure) whereas, value needed to be significant was 1.98. Mean scores of systolic blood pressure and diastolic blood pressure between contact and non-contact games are graphically depicted in figure 2.

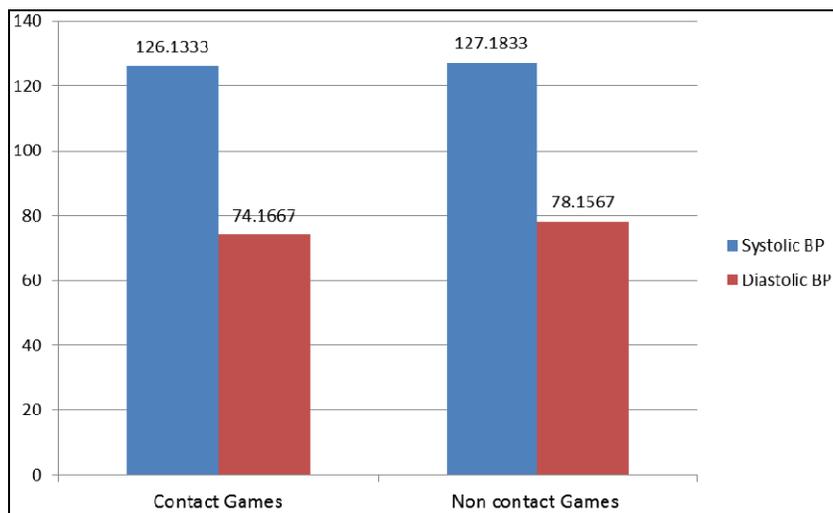


Fig 2: The Graphical Representation of Mean Scores of Systolic Blood Pressure and Diastolic Blood Pressure between Contact and Non-Contact Games

The comparison of scores on pulse rate between contact and non-contact games is presented in table -2.

Table 2: Comparison of Scores on Pulse Rate between Contact and Non-Contact Games

Variables	Groups	Mean	SD	MD	SE	't'
Pulse Rate	Contact	73.86	9.685	4.700	1.250	2.328*
	Non-Contact	78.56	12.275			

*Significant at.05 level
't'.05 (118) = 1.98

It is depicted from the table-2 that calculated 't' values in case of contact games and non-contact games on pulse rate was found to be statistically significant as the values obtained was 2.328 whereas, the tabulated value was 1.98 which 118

degrees of freedom at.05 level of significant. Mean Scores of pulse rate between contact games and non-contact games are graphically depicted in figure 3.

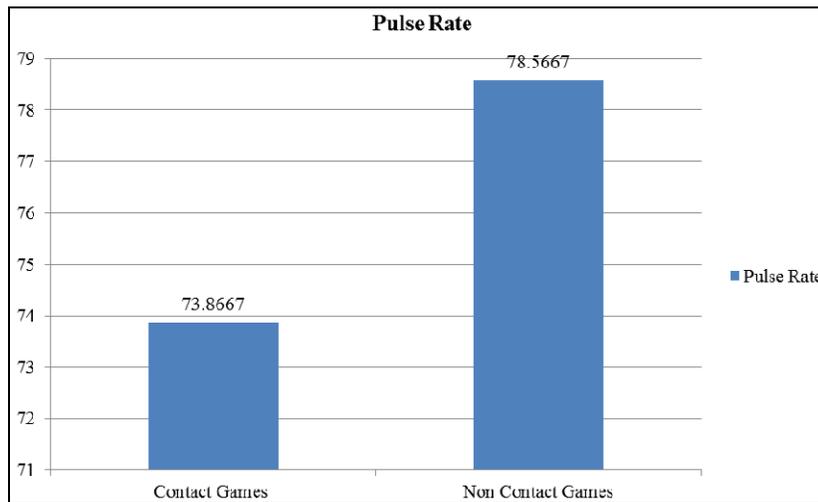


Fig 3: The Graphical Representation of Mean Score of Pulse Rate between Contact and Non-Contact Games

Conclusions

In the light of the findings and limitations of the present study the following conclusions were drawn:

- A significant difference was observed on pulse rate between contact and non-contact games. No significant differences were found between contact and non-contact games on systolic blood pressure and diastolic blood pressure.
- Contact game players were performed significantly better on pulse rate than non-contact game players.

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