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RESEARCH ARTICLE

BLOOD PRESSURE AND PULSE RATE AMONG NATIONAL LEVEL MALE FOOTBALL, BASKETBALL AND HOCKEY PLAYERS

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ABSTRACT

The purpose of the present study was to compare the blood pressure and pulse rate among selected national level male football, basketball and hockey players. For the purpose of the study, sixty (N=60) national level male players (twenty for each game) from Chandigarh (UT) were selected as subjects of the study by using stratified random sampling technique. The age of the subjects ranged between 19-25 years. To find out the significance differences selected national level male football, basketball and hockey players, one way ANOVA was used with the help of SPSS software. Further Scheffe's post-hoc test was applied to see the direction and significance of differences where 'F' ratio was found significant. The level of significance chosen was .05. There were no significant differences obtained on blood pressure and pulse rate among national level male football, basketball and hockey players on blood pressure (systolic and diastolic) and pulse rate.

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INTRODUCTION

Since different activities make different demands on the organism relating to neurological, respiratory, circulatory, metabolic and temperature. Physiological fitness is special to each activity. 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 and Holmgren, 1976). Studies tell us that blood pressure has a positive relationship with training. Athlete with aerobic training will have lower blood pressure during rest and submaximal 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.

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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 the blood pressure (systolic blood pressure and diastolic blood pressure) and pulse rate among selected national level male football, basketball and hockey players.

MATERIALS AND METHODS

For the purpose of the study, sixty (N=60) national level male players (football=20, basketball=20 and hockey=20) from Chandigarh (UT) were selected as subjects of the study by using stratified random 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 (systolic blood pressure and diastolic blood pressure and pulse rate, Analysis of Variance (ANOVA) was applied with the help of SPSS software. Further Scheffe's post-hoc test was used to see the direction and significances of differences where 'F' ratio was found significant. For testing hypothesis, the level of significance chosen was 0.05.

RESULTS

Descriptive analysis of blood pressure (systolic and diastolic) among national level male football, basketball and hockey players is presented in Table 1. The Analysis of Variance (ANOVA) among national level male football, basketball and hockey players on blood pressure is presented in Table 2.

Table 2 clearly indicates that there were no significant differences among national level male football, basketball and hockey players on blood pressure (systolic blood pressure and diastolic blood pressure) since the obtained 'F' values at 0.05 level were 1.026 (systolic blood pressure) and .424 (diastolic blood pressure) whereas, value needed to be significant was 3.15.

Table 1. Descriptive Analysis of Selected Different Three Games on Blood Pressure (Systolic Blood Pressure and Diastolic Blood Pressure)

Variable	Group	N	Mean	Std. Deviation	Std. Error
Systolic Blood Pressure	Football	20	127.70	12.13	2.71
	Basketball	20	127.80	15.71	3.51
	Hockey	20	122.90	26.76	5.98
Diastolic Blood Pressure	Football	20	71.85	11.94	2.67
	Basketball	20	78.05	12.10	2.70
	Hockey	20	72.60	19.50	4.36

Table 2. ANOVA of Selected Different Three Games on Blood Pressure (Systolic Blood Pressure and Diastolic Blood Pressure)

Variable	Source of Variance	Sum of Squares	df	Mean Square	F
Systolic Blood Pressure	Between Group	458.033	2	229.017	
	Within Group	12724.300	57	223.233	1.026
	Total	13182.33	59		
Diastolic Blood Pressure	Between Group	313.733	2	156.867	
	Within Group	21101.200	57	370.196	.424
	Total	21414.933	59		

*Significant at .05 level
$F_{.05}(2, 57) = 3.15$

Table 3. Descriptive Analysis of Selected Different Three Games on Pulse Rate

Variable	Group	N	Mean	Std. Deviation	Std. Error
Pulse Rate	Football	20	70.50	11.16	2.49
	Basketball	20	74.55	5.35	1.19
	Hockey	20	76.55	10.86	2.42

Table 4. ANOVA of Selected Different Three Games on Pulse Rate

Variable	Source of Variance	Sum of Squares	df	Mean Square	F	Sig.
Pulse Rate	Between Group	380.033	2	190.017		
	Within Group	5154.900	57	90.437	2.101	.132
	Total	5534.933	59			

**Significant at .05 level*
$F_{.05}(2, 57) = 3.15$

Fig. 1. Illustration of Blood Pressure and Pulse Rate Measurement

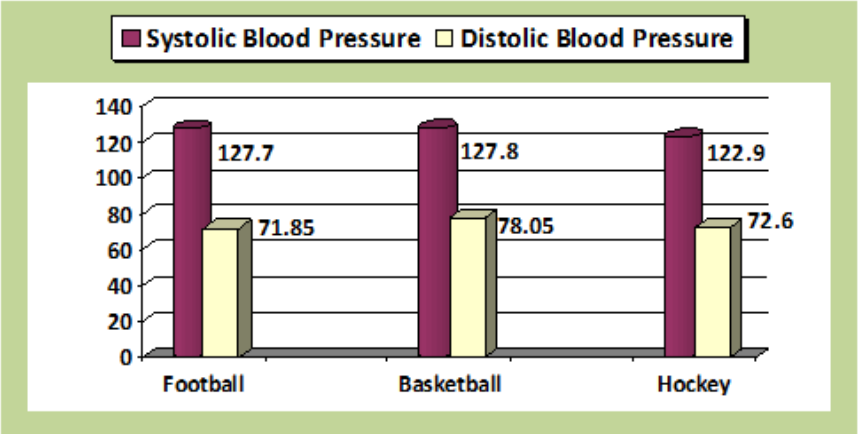

Fig. 1. Graphical Representation of Mean Scores of National Level Male Football, Basketball and Hockey Players on Blood Pressure (systolic and diastolic)

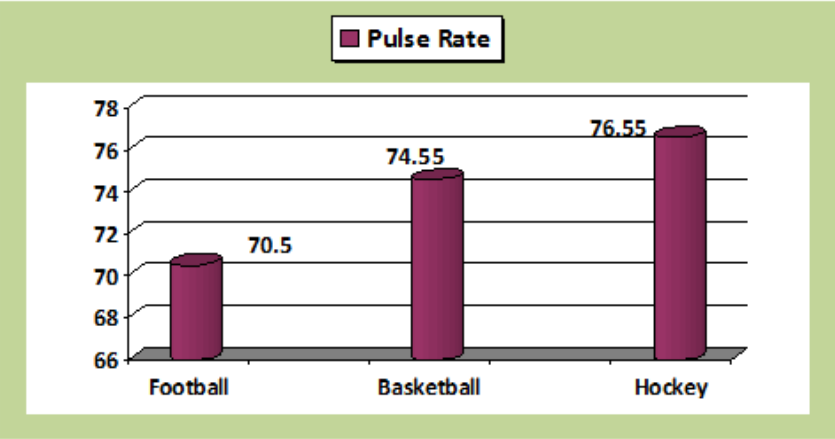

Fig. 2. Graphical Representation of Mean Scores of National Level Male Football, Basketball and Hockey Players on Pulse Rate

Mean scores of different three games on blood pressure are depicted graphically in Figure 1. Descriptive analysis of pulse rate among national level male football, basketball and hockey players is presented in Table 3. The Analysis of Variance (ANOVA) among national level male football, basketball and hockey players on pulse rate is presented in Table 4. Table 4 clearly indicates that there were no significant differences among national level male football, basketball and hockey players on pulse rate since the F obtained at .05 level was 2.101 whereas, the value needed to be significant was 3.15 for 2 and 57 degree of freedom at .05. Mean scores of different three games on pulse rate are graphically depicted in Figure 2.

DISCUSSION

The finding of the study showed that there were no significant differences obtained on blood pressure (systolic and diastolic) and pulse rate among national level male football, basketball and hockey players. The probable reason could be that the sports of football, basketball and hockey players need equal level of fitness which are highly required while performance certain skills like jump passing, quick running, dribbling etc. in basketball and heading, jumping, quick running, kicking the ball in football and dribbling, quick running, hitting etc. in hockey.

Henceforth, the physiological variables like blood pressure and pulse rate among national level male football, basketball and hockey players could not be differentiated.

Conclusion

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

- No Significant differences were found among national level male football, basketball and hockey players on blood pressure (systolic and diastolic).
- No Significant differences were found among national level male football, basketball and hockey players on pulse rate.

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