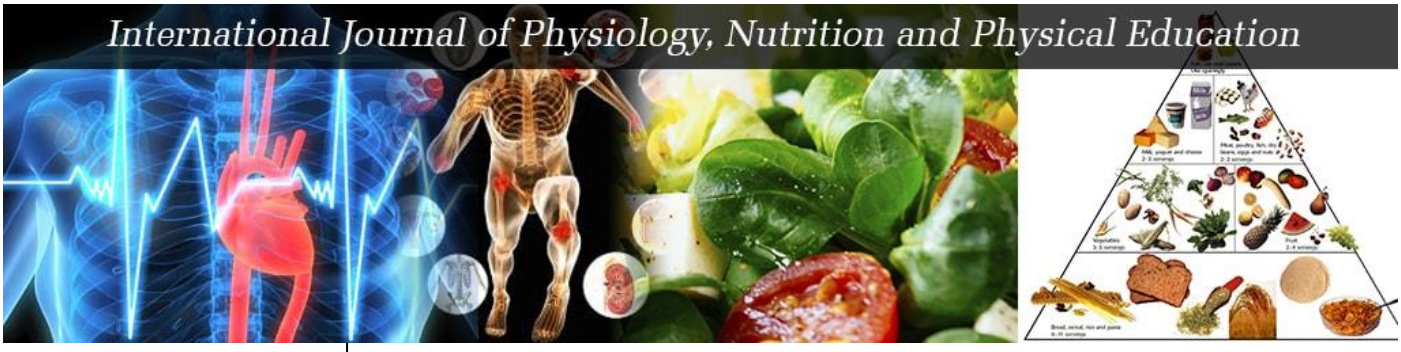

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Comparison of aerobic and anaerobic capacity among the junior's football and hockey players

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Abstract
The main objective of the study was to compare the aerobic and anaerobic capacity among the junior age group football and hockey players. The Fifteen Football and Hockey game players were selected from Ayodhya District of U.P who participated in junior age groups (14-17 years) of district level competitions. The Cooper's 12 min Run-Walk test was administered and recorded the distance covered in miles and the Aerobic capacity of the players was determined by using the equation, V02max=35. 9712 ('distance in miles for 12 min run-walk)-11.2878, and expressed in ml/kg/min. To determine the anaerobic capacity, Sargent Jump-Lewis Nomogram was employed and anaerobic power was expressed in kg. rn/sec. By the Descriptive Analysis, the mean and standard deviation of Aerobic capacity for Football and Hockey groups were 41.66±7.99 and 41.50±9.11 respectively, and the mean and standard deviation of anaerobic capacity for Football and Hockey groups were, 100.20±8.65 and 93.93±9.18. Further, by applying the Independent 't' test it was evident that there was no significant difference between the means of Football and Hockey players on the scores of Aerobic capacity since the obtained value of 't' (-.050) was less than the tabulated value of 't' (2.048) which was required to be significant with 28 degree of freedom at 0.05 level of confidence. It was also further evident that there was no significant difference between the means of Football and Hockey players on the scores of Anaerobic capacity since the obtained value of 't' (-1.075) was less than the tabulated value of 't' (2.048) which was required to be significant with 28 degree of freedom at 0.05 level of confidence. Therefore, there was no significant difference on aerobic and anaerobic capacity between junior football and hockey players.

Keywords: Aerobic, anaerobic capacity among, junior's football, hockey players

Introduction
Organisms carry different capacity level; depend on their anatomical, anthropometrical, physiological and different training loads and systems. However, the athlete is to be conditioned to adopt to work at given intensity for prolonged time which is known as aerobic training and he is also required to be conditioned to do explosive work of high intensity in short duration of time which is known as anaerobic training. Aerobic capacity is the ability to mobilize energy for continuous performance of specific movement for prolonged time i.e. capacity for prolonged physiological functioning under continuous supply of required oxygen completely available under conditions and the glucose molecule is completely broken down to CO2 and H20, and energy is made available as needed. To enable a person to continue an activity for prolonged period, continuous flow of oxygen has to be ensured to the working muscles for liberation of energy. The aerobic capacity of a person can be measured by the maximum amount of oxygen consumed by the working muscles in one minute (V02 max).
The aerobic capacity (V02 max) of a person depends upon the factors as: amount of oxygen which can be extracted by the blood from the atmosphere, amount of oxygen that can be transported from the lungs to the working muscles, amount of Oxygen taken up by the muscle cells from the blood, amount of oxygen of glycogen stores in the muscles and liver.
Anaerobic capacity is the ability to mobilize energy during activities of intense nature i.e. executing intensive work with explosive action in short duration of time, such as kicking the football faster and for explosive take-off in jumps, maximum rate for about two to three minutes under water swimming etc. It is the ability to perform at maximal capacity for short periods of time and to minimize the amount of lactic acid production in the working muscles at a level of insufficient oxygen availability.

Objective of the Study

The main objective of the study was to compare the aerobic and anaerobic capacity among the junior age group Football and Hockey players.

Methodology

The Fifteen Football and Hockey game players were selected from Ayodhya District of U.P who participated in junior age groups (14-1 7years) of district level competitions. Independent 't' test applied with regards to Football a Hockey groups and the random group design was employed in this study the level of significant was set at 0.05 level of confidence.

Findings

Section One

The findings pertaining Football and Hockey groups mean and standard deviations were computed by the descriptive analysis and presented in table-1

Table 1: Showing the Mean and Standard Deviation of Football Group and Hockey Group

Variables	Groups	N	Mean	Std. Deviation
Aerobic Capacity (ml kg min)	Football	15	41.66	7.99
	Hockey	15	41.50	9.11
Anaerobic Capacity (kg.m/sec)	Football	15	100.20	8.65
	Hockey	15	93.93	9.18

Table-1 reveals that the mean and standard deviation of Aerobic capacity for Football group 41.66 ±7.99 and Hockey group 41.50±9.11, and Anaerobic capacity for Football group 100.20±8.65 and Hockey group 93.93±9.18.

Section Two

To observe the difference between Football and Hockey groups the independent 't' test was employed and presented in Table-2 and 3.

Table 2: Showing the Significant Difference of Mean in Aerobic Capacity between the Football and Hockey Players

variable	Group Mean		Mean Diff.	SE	't'
	Football	Hockey			
Aerobic Capacity	41.66	41.50	0.16	3.13	.050®

@Not Significant at .05 level of confidence $t_{.0}5$ (28) = 2.048

It is evident from Table-3 that there was no significant difference between the means of Football and Hockey players on the scores of Aerobic capacity since the obtained value of 't' (.05) was less than the tabulated value of 't' (2.048) which was required to be significant at 0.05 level of confidence with 28 degrees of freedom.

Table 3: Showing the Significant Difference of Mean in Anaerobic Capacity between the Football and Hockey Players

Variable	Group Mean		Mean Diff.	Std. Error	't'
	Football Players	Hockey Players			
Anaerobic Capacity	100.20	93.93	6.27	5.83	1.075@

@Not Significant at .05 level of confidence t.05 (28) = 2.048

It is evident from Table-3 that there was no significant difference between the means of Football and Hockey players on the scores of Anaerobic capacity since the obtained value of 't' (1.075) was less than the tabulated value of 't' (2.048) which was required to be significant at 0.05 level of confidence with 28 degrees of freedom. The graphical representation of mean difference is shown in Figure-1 and 2.

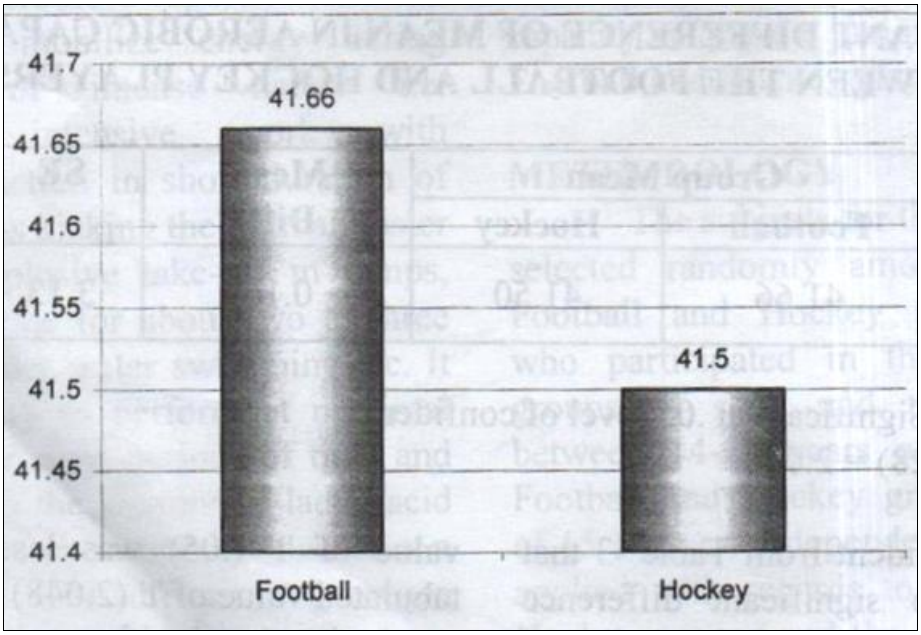

Fig 1: Graphical representation of Aerobic Capacity

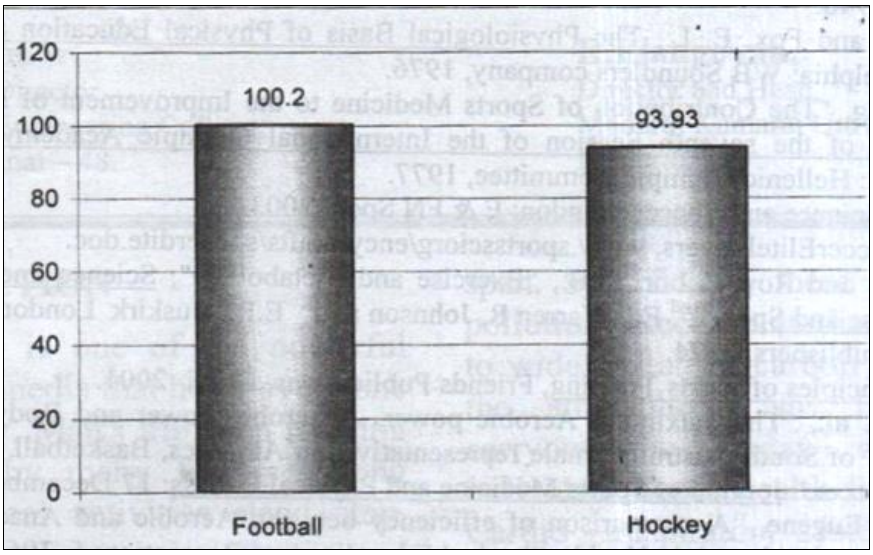

Fig 2: Graphical representation of anaerobic capacity

Discussion and Conclusion

In the light of the findings, no difference was found the junior age group Football and hockey players on the variables of anaerobic capacity. This difference might be the fact that the nature of the games (Football and Hockey) demand more or less equal amount of physical and physiological effort. The tempos of the games are more or less similar and that might be the basis of transfer of training of both the games. Thus, it was concluded that there was no significant difference in aerobic and anaerobic capacity in between junior Football and Hockey players.

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