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GRT COMPARATIVE STUDY OF ATHLETES, BOXERS AND HOCKEY PLAYERS ON REACTION TIME AND AGILITY

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Abstract:-The purpose of the study was to compare the reaction time and agility of players of varied sports. The study was confined to 45 male players, who represented the Lucknow University in the disciplines of hockey, athletic and boxing. The reaction time of right and left hand was measured up to 1/100th of a second with the help of electronic reaction time apparatus and agility of players was assessed through semi agility test. To compare the players from selected sports F-ratio was used and for testing the hypothesis the level of significance was set at 0.05 level of confidence. The statistical analysis of data revealed that (1). Athletes and boxers and hockey players and boxers differ significantly in the dimensions of agility and right hand reaction time. (2). Hockey players and athletes did not differ in their agility and right hand reaction time and (3). Hockey players, athletes and boxers did not differ significantly in left hand reaction time.

Keywords:Boxers And Hockey Players , hypothesis , statistical analysis .

INTRODUCTION:

Reaction time is most significant factor for better performance in games requires very quick actions and movements. It depends upon the nervous process of an individual. Another important factor influencing movement is agility. It is useful to a great extent in sports involving quick change of body direction or its parts. It depends primarily on specific muscle coordination.

General agility is considered synonymously with general motor agility. It includes several items such as strength, power, agility, speed, endurance, reaction time and flexibility. An endurance of these traits enables a person to perform well in such basic activities as running, jumping, throwing, climbing and dodging.

The degree to which the components of general motor ability contribute to particular game or activity depends upon the type of variety of movements involved in them. Out of all the components that contribute one's general motor ability, reaction time and agility may dominate one's ability to perform in situations demanding quick response and change in direction in all games and sports.

Today physical educationists want their athletes to achieve the maximum possible height of the performance, fields as physiology of exercise, sports psychology, sports medicine, measurement and evaluation etc bring significant information's and facts which in turn lead to better understanding of human organism and possible ways to improve and to do better. Thus wonderfully improving the standards of performance of the athletes at national as well as international levels are the proofs of improvements and sincere efforts are being made to raise the standards.

METHOD:-

Fifteen male players each from the discipline of hockey, athletic and boxing who had participated in the inter university competition, representing Lucknow university were related as subjects for the study. All the students resided in the city of Lucknow and were the students of one of the associated colleges of the University of Lucknow. The age of the subject was ranging from 18 to 25 years.

The reaction time of right and left hand was measured up to 1/100th part of a second with the help of electronic reaction time apparatus and to assess the agility of players semi agility test was conducted and time up to 1/10th a second was recorded

through stop watch.

FINDINGS:-

Each player was given two trials for agility and three trials for the hand reaction time and best performance among the trials was recorded for the study. For comparing the players from the selected sports of athletic, hockey and boxing F-ratio was calculated and for testing the hypothesis the level of significance was set at 0.05 level of confidence.

The findings related to agility and had reaction time for all the three groups are given below.

Table-1

Test items	Source of variance	Degree of freedom	Sum of squares	Mean sum of squares	F-ratio
Agility	Between group	2	18.963	9.481	21.910*
	Within group	42	18.110	0.431	
Right hand reaction time	Between group	2	0.00089	0.00044	7.88*
	Within group	42	0.00238	0.00005	
Left hand reaction time	Between group	2	0.00028	0.00014	1.33
	Within group	42	0.0045	0.00010	

*Significant at 0.05 level of confidence

$$F_{0.05}(2,42) = 3.23$$

It is evident from above table that there was significant difference among three study groups as the obtained F-ratio of 21.910 and 7.88 for agility and right hand reaction time respectively were higher than the required F value of 3.23, whereas no significance was found in the dimension of left hand reaction time of the obtained-ratio value of 1.33 was less than the required F value.

As the significant difference was found among three study groups in their agility and right hand reaction time Scheffe's post hoc test was applied. The analysis pertaining to post hoc test is given in tables 2 and 3.

Table-2

Paired means and differences between means for the athletics, boxing and hockey players in their agility status.

Athletics	Boxing	Hockey	Difference between means
12.47	13.73		1.26*
12.47		12.26	0.21
	13.73	12.26	1.47*

Significant at 0.05 level of confidence, confidence interval = 0.63

It was evident from the above table that the difference between paired means of athletes and hockey players (0.21) was not found significant as the value is less than the required value 0.63 where as the difference between paired means for the athletics and boxers (1.26) and hockey players and boxers (1.47) were found to be significant as the confidence interval 0.63 was less than these values. This indicates that the athletic and hockey players did not differ significantly, where as the athletics and boxers and the hockey player and boxers showed significant difference on their agility status.

Table-3

Paired means and differences between means for the athletics, boxing and hockey players in their right hand reaction time.

Athletics	Boxing	Hockey	Difference between means
0.112	0.122		0.01*
0.112		0.111	0.001
	0.122	0.111	0.11*

Significant at 0.05 level of confidence, confidence interval = 0.005

It was evident from the above table that the difference between paired means of athletic and hockey players (0.001) was not found significant as the value is less than the required confidence interval value of 0.005 where as the difference between paired means for the athletic and boxing (0.01) and hockey players and boxing (0.011) was found to be significant as the confidence interval 0.005 was less than these values. This indicated that the athletic and hockey players did not differ significantly, where as the athletics and boxing and hockey players and boxing showed significant difference on their right hand reaction time scores.

DISCUSSION OF FINDINGS:-

The statistical analysis of data revealed that, there was a significant difference among athletic and boxing and hockey players and boxing in the dimension of agility and right hand reaction time, where as significant among hockey players, athletic and boxing, hence hypothesis is partially accepted.

The significant difference observed among hockey players and boxing and athletic and boxing in the dimension of agility and right hand reaction time may be due to the fact that boxers train themselves, more vigorously for developing strength and power in the muscles, have greater resistance to motion. They are slower.

The significant difference among athletic, boxing and hockey players in the dimension of left hand reaction time may be attributed to the fact that at one hand speed of movement of boxing due to these more viscous strong and heavy muscles slow down. On the other hand the left hand movements of hockey players and athletics remain slower than right hand movements probably because left hand is comparatively used less than the right hand in general daily tasks.

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