

## **Athletic Intelligence and Different Nature of Sports: an Analysis**

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### **Abstract**

**Background:** The present study was aimed to assess the athletic intelligence among team game and individual game players and to compare the athletic intelligence between team and individual game players and open skill and closed skill game players.

**Methods:** A total of one hundred fifty seven (157) players of both genders were selected using purposive sampling, out of which 64 were representing individual games (Judo, Athletics, Gymnastics and Badminton) and 93 representing from Team games (Kho-Kho, Volleyball, Cricket, Handball, Basketball, Football and Kabaddi). At least collegiate level participation was the inclusion criteria, studying in the various colleges of Delhi University, aged 17 years and above. "Attribute Rating Scale" has been used for measuring four test items (Meta-Cognitive, Physical, social and Technical), with an acceptable reliability of .78. The data obtained was analyzed by computing descriptive statistics along with independent 't' test and ANOVA. The level of Significance was set at 0.05.

**Results:** Significant differences in open skill and close skill game players and more importantly between team game and individual game players in regard to athletic intelligence proves the fact that athletic intelligence is sports specific in nature.

**Keywords:** Athletic Intelligence, Team Games, Individual Games, open skill, closed skill.

### **INTRODUCTION**

Being an all pervading phenomenon, intelligence is involved and reflected in everything that a person does (**Kamlesh, 1998**). Intelligence operates in various directions. A person considered to be intelligent in mathematics, may not be intelligent in literature, similarly a person intelligent in chess, may not be so as a hockey player. An athlete may be intelligent as a sportsman but he may not prove to be so in mathematics, because, intelligence manifest itself in various ways (**Kamlesh, 1988**).

Thus, theorists and experts like Thorndike (1928), Thurstone (1938), Cattell (1941, 1971), Vernon (1971), Carroll (1993) and Gardner (1983) in the field of psychology believed and assessed that human has multiple kinds of intelligence (**Kamlesh, 2011; Pal et al., 2004; Cohen and Swerdlik, 2002 and Kaufman, 2011**) and when these are identified within the individual than we can deal with them accordingly to the type of intelligence they possess (**Badr and Radwan, 2010**).

Today motor performance is considered to be an important adjunct of intelligence. As athletic ability, motor performance and sports which are aspects of man's overt behavior are controlled by the inner or what we call intellectual realm of human mind. The premise that movement is one of the bases for the intelligent behavior has now been accepted as one of the props of the theoretical framework of educational philosophy (**Kamlesh, 1988**). Therefore, Howard Gardner (1983) and Mario Seigle bring to fame a neglected intelligence "Athletic intelligence" (**Kamlesh, 2009**).

Athletic Intelligence has been defined as the “Individual Ability of using his body in an ingenious way and dealing with the competitive situation through large and accurate movements of the body; helps in performing in a graceful and a coordinating way that achieves harmony between body and mind” (**Badr and Radwan, 2010**).

In present era of killing competition in the sports world, players are under constant threat of being wiped out of the team, its quiet challenging for them to improve and maintain the most desirable performance for quiet long enough and continuing performing better than their last time. Athletic intelligence is the key for success in the sports arena. Athletic intelligence breaks the ground between an elite, mediocre and novice (**Eriksson, 2007**).

As the arena lacks researches, very less work has been done in the concerned area that is creating gaps in the literature causing ambiguity of the concept. There is a conflict between the experts whether athletic intelligence is sports specific. Athletes seem to differ in intelligence on game to game basis (**Kamlesh, 1988**).

Papanikolaou (2000) and Singer and Janelle (1999) divided the concept into team sports intelligence and individual sports intelligence. Papanikolaou (2000) refers Team sports intelligence to a more social component where the athlete needs to take strategies, tactics, team objectives and opponents style of play into consideration. In this type of intelligence the key is to be dynamic when interacting with teammates and opponents. The individual sports intelligence focuses on the importance to understand the whole fashion of the sport, but also the ability to (from Experience) know the physical, technical, tactical and psychological qualities of the sport (**Eriksson, 2007**).

As Athletic Intelligence is still an amorphous concept, the researcher is making an effort to test the sports specific nature of athletic intelligence, may help in explaining the core of athletic intelligence. Therefore, following objectives have been listed.

### **Objectives of the Study**

As per the need of the study and after going through the available literature in the concerned area following objectives were set for the study:

- To assess the Athletic Intelligence among team game players.
- To assess the Athletic Intelligence among Individual game players.
- To compare the Athletic Intelligence between open skill and close skill game players.
- To compare the Athletic Intelligence between team and individual game players.

### **PROCEDURE AND METHODOLOGY**

For the purpose of this study a total of one hundred fifty seven (157) players were selected using purposive sampling, out of which 64 were from individual games (Judo, Athletics, Gymnastics and Badminton) and 93 were from Team games (Kho-Kho, Volleyball, Cricket, Handball, Basketball, Football and Kabaddi). Further the study has been limited to those who have played at least collegiate level, studying in the various colleges of Delhi University. The age of the subjects were ranging from 17 to 23 years. Athletic Intelligence was selected as the dependent variable of the study; “Attribute Rating Scale” has been used for the collection of data, mainly consisting of four sub-variables namely Physical, Technical, Social and Cognitive, with an acceptable reliability of .78. The data obtained was analyzed by computing descriptive statistics along with the Independent ‘t’ test and ANOVA. The level of Significance was set at 0.05.

## RESULTS AND DISCUSSIONS

Findings pertaining to the set objectives have been presented in table no. 1 to table no. 6.

**Table No. 1: Descriptive Statistics of Individual and Team Game Players on Athletic Intelligence Scale**

Variables	Individual Games (N=64)		Team Games (N=93)	
	Mean	SD	Mean	SD
Physical	38.39	5.57	39.67	4.47
Technical	20.25	3.00	20.40	2.55
Social	13.97	3.93	17.92	3.21
Cognition	26.23	3.80	27.19	2.81
Total	98.84	12.73	105.18	9.83

The table no. 1 clearly shows the mean and standard deviation values of Individual and team game players on Athletic Intelligence scale. The mean and standard deviation of individual game and team game players on the total score of athletic intelligence scale are  $98.84 \pm 12.73$  and  $105.18 \pm 9.83$ . Similarly, the mean and standard deviation of the team game players and individual game players on the four sub-scales of athletic intelligence are  $(38.39 \pm 5.57)$  and  $(39.67 \pm 4.47)$  for physical,  $(20.25 \pm 3.10)$  and  $(20.40 \pm 2.55)$  for technical,  $(13.97 \pm 3.93)$  and  $(17.92 \pm 3.21)$  for social and  $(26.23 \pm 3.80)$  and  $(27.19 \pm 2.81)$  for cognition respectively.

Sport is complex because of its nature. Sports are classified on the basis of the nature of play as team and individual and also by the nature of the environment influence on the performance like open skill and closed skill. The significance of the mean difference between open skill (Kho-Kho, Volleyball, Cricket, Handball, Basketball, Football and Kabaddi) and close skill (Judo, Athletics, Gymnastics and Badminton) was tested by computing t test, results with regard to comparative statistics is presented in table no. 2.

**Table no. 2: Descriptive Statistics and t-values of Open Skill and Close Skill players on Athletic Intelligence Scale**

Variables	N	Mean	SD	df	t	P-value (2-tailed)
Close Skill	64	98.84	12.73	155	3.87**	0.00
Open Skill	93	105.18	9.83			

\*\* $t_{0.05} (155) = 1.98$

It may be observed from the above table no. 2 that the close skill game players (Judo, Athletics, Gymnastics and Badminton) are having mean score of  $98.84 \pm 12.73$  as compared to their counterparts, open skill game players (Kho-Kho, Volleyball, Cricket, Handball, Basketball, Football and Kabaddi) are having mean score of  $105.18 \pm 9.83$ . The table further indicates a significant difference between close and the open skill game players on athletic intelligence, as the calculated 't' value of 3.87 is statistically significant at 0.05 level. This declares that there is variation in the game conditions and requirements of close skill and open skill games and ultimately resulting in the difference on athletic intelligence. This may help the scholar to justify their earlier assumption that athletic intelligence is sports specific.

Within the team game and individual game sports there are different nature of sports therefore; scholar has further analyzed the mean difference in athletic intelligence among players playing specific sports within the team and individual games. One way analysis of variance has been computed to compare the mean among different sports players. The findings with regard to ANOVA are presented in table no. 3 to table no. 6.

**Table no. 3: Analysis of Variance (ANOVA) of Athletic Intelligence among Selected Team Game Players**

	df	F	P-value
Between Group	6	18.27*	0.000
Within Group	86		
Total	92		

\*P<0.00=2.99

Table no. 3 summarizes the values for ANOVA of athletic intelligence among team game players, which presents a significant difference in athletic intelligence of team game players, as the value is found to be 18.27 against the tabulated value of 2.99, which is significant at 0.01 level.

Since the 'F' value is significant to test the significant difference between games the post hoc test was employed. The level of significance was set at 0.05 level, the results have been presented in table no. 4.

**Table No.4: Post Hoc Analysis of Athletic Intelligence of Selected Team Game Players**

Group I	Group II	Mean Difference (1-2)	P-value
Kho-Kho	Volleyball	8.50	0.102
	Cricket	9.47*	0.005
	Handball	0.83	1.000
	Basketball	5.28	0.540
	Football	7.47	0.130
	Kabaddi	13.80*	0.001
Volleyball	Cricket	17.97*	0.000
	Handball	7.67	0.190
	Basketball	13.78*	0.001
	Football	1.03	1.000
	Kabaddi	22.30*	0.000
Cricket	Handball	10.31*	0.002
	Basketball	4.20	0.789
	Football	16.95*	0.000
	Kabaddi	4.34	0.882
Handball	Basketball	6.11	0.347
	Football	6.64	0.247
	Kabaddi	14.64*	0.000
Basketball	Football	12.75*	0.001
	Kabaddi	8.52	0.240
Football	Kabaddi	21.27*	0.000

\*Mean Difference is Significant at 0.05 Level

The table no. 4 reveals the values for post-hoc analysis of athletic intelligence among selected team games, describing a significant difference in the athletic intelligence of Kho-Kho with Cricket (9.47) and Kabaddi (13.80). Similarly a significant difference of Volleyball with Cricket (17.97), Basketball (13.78) and Kabaddi (22.30) has been discovered. A significant difference is also detected of Cricket with Handball (10.31) and Football (16.95). Also a

significant difference is observed between Handball and Kabaddi (14.64), Basketball and Football (12.75) and finally between Football and Kabaddi (21.27).

**Table No.5: Analysis of Variance (ANOVA) of Athletic Intelligence among Individual Game Players**

	df	F	P-value
Between Group	3	37.43*	0.00
Within Group	60		
Total	63		

\*P<0.00=2.75

Table no. 5 indicates the values for ANOVA of athletic intelligence among individual game players, which shows that there is a significant difference in athletic intelligence of individual game players, as the value is found to be 37.43 against the tabulated value of 2.75. Since, F value is significant post hoc test was computed. The findings are presented in table no. 6.

**Table No. 6: Post Hoc Analysis of Athletic Intelligence of Individual Game Players**

Group I	Group II	Mean Difference (1-2)	P-value
Judo	Athletics	-16.39*	0.00
	Gymnastics	-21.98*	0.00
	Badminton	-24.31*	0.00
Athletics	Gymnastics	-5.60	0.16
	Badminton	-7.92*	0.01
Gymnastics	Badminton	-2.32	0.86

\*Mean Difference is Significant at 0.05 Level

Table no. 6. Depicts the values for post hoc analysis of athletic intelligence among selected individual games, which shows that a significant difference is found in the athletic intelligence of Judo players with athletes (16.39), Gymnasts (21.98) and Badminton players (24.31), similarly a significant relationship is also observed between Athletes and Badminton players with the value 7.92.

## CONCLUSIONS

Within the limitations of the study following conclusions were drawn based on the findings. The present study shows that:

- Athletic Intelligence significantly differ between close skill and open skill players, exhibiting sports specific nature of athletic intelligence.
- Significant difference in the Athletic Intelligence within the selected team games and individual games shows that Athletic intelligence is sports specific.

## Educational Implications

- The present study may help in filling the gap in the literature.
- May help in broadening the peripheries for the future research analyses in the area of athletic intelligence.
- The sports specific nature of athletic intelligence, will enable the sports psychologists and reaserchers to develop specific athletic intelligence assessment tests for different sports.

**Ethical Considerations:**

Research has been conducted and completed in accordance with the principles of ethics. Ensured no psychological, social and financial harm occurred to the participants during the study. Participation in research was voluntary. Fundamental of inclusiveness have been adopted, therefore, have not taken into the consideration the caste, creed, colour and race of the subjects during the selection for the study.

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