

# A Study of Athletic Intelligence Attributes in Selected Sports

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**Abstract-** When the high performance in sports is discussed, the concept of Athletic Intelligence originates; because of the gap in understanding which skills representing athletic performance these conceptions are wide. So, the researcher has made an effort to assess the athletic intelligence attributes in selected sports. The study was conducted on a total of one Hundred sports persons, but for the final evaluation only fifty four subjects were considered, those who have played at least college level using purposive sampling studying in the Delhi University with age ranged from 17 years and above. The Athletic Intelligence was assessed by a questionnaire "Attribute Rating Scale" developed by "Johan Erikson" (2007). A Strong Reliability value of the questionnaire was obtained on Indian population as Cronbach's alpha was 0.75. The different attributes have been noticed in different sports. The highest rated attributes of athletic intelligence were found to be more contributing in performance. In contrast, the lowest rated attributes were found to be comparatively less or not at all contributing in the performance of the selected sports. The overall highest rated attribute among the selected sports was to take quick decisions which is a meta-cognitive attribute (6.32). Whereas, the lowest rated attribute was to criticize fellow players which is a physical attribute (4.93). An overview has revealed that the highest emphasis is given on the meta-cognitive, second highest to technical and the physical variable has been rated lowest. Hence, it can be concluded that by working out on the highest rated athletic intelligence attributes, performance in selected sports can be effectively raised.

**Index Terms-** Athlete, Intelligence, Athletic Intelligence, Sports, Attributes.

## I. INTRODUCTION

In the field of sports, intelligence is considered as a crucial factor for achievement of excellence. So, whenever the elite performance in sports is discussed the concept of Athletic Intelligence arises. According to **Gardner (1985)** Athletic Intelligence is the capacity to use your whole body or parts of the body (your hand, fingers, arms) to solve problem, make something or put on some kind of production. In sport an athlete is required to use his/her whole body to its optimum level. In other words we can say one has to be intelligent enough to use his body to its optimum level.

So far very less work has been done in the concerned field, several questions needed to be still answered, this is because the area lacks in testing. There's hardly likely to be a single

inventory that can have complete predictive power in assessing athletic intelligence. Before developing the same one should know exactly what are the most possible constituents of athletic intelligence. So, **Cratty (1972)** shortlisted 13 major constituents of athletic intelligence (Cognitive abilities, Adjustment, Tactics and strategies, Anticipation of and responding to tactics, Analysing opponents moves, Quick decision, Analysing skills of team interaction, Exploiting opponents' moves, Ability to change tactics when new situations arise, Personal relationship, Forcing the opponents to play to your tune, evaluating one's own and opponents abilities and Remembering rules of the game). These components have been considered to be crucial for high-level performance as these are accounted as a significant proportion of variance in performance between elite and sub-elite athletes (**Bompa, 1999; Erickson, 2007 and McPherson, 1994**).

Further, the percentage of variance of these 13 components varies from sports to sports. Because, every sport has their own specific demands for motor skills (technical, tactical, conditional), physical fitness, emotional and social skills and so on (**Kamlesh, 2009**). Hence, the researcher has made an attempt to scrutinize the core athletic intelligence attributes of certain selected sports. These may hold the key to unlock the exact constituents of an athletic intelligence test. Therefore, the scholar has tested the following objectives.

## II. OBJECTIVES OF THE STUDY

- ❖ To assess the sport specific attributes of Athletic Intelligence in baseball
- ❖ To assess the sport specific attributes of Athletic Intelligence in basketball
- ❖ To assess the sport specific attributes of Athletic Intelligence in cricket
- ❖ To assess the sport specific attributes of Athletic Intelligence in football
- ❖ To assess the sport specific attributes of Athletic Intelligence in handball
- ❖ To assess the sport specific attributes of Athletic Intelligence in hockey
- ❖ To assess the sport specific attributes of Athletic Intelligence in volleyball
- ❖ To assess the Athletic Intelligence attributes among selected sports.

### III. PROCEDURE AND METHODOLOGY

By using purposive sampling a total of one Hundred sports persons were selected but for the final evaluation fifty four subjects were considered as they have answered all the questions. Further the study has been limited to those who have played at least college level studying in the Delhi University, with the age ranged from 17 years and above. Athletic Intelligence was selected as the variable of the study, An Athletic Intelligence assessment questionnaire “Attribute Rating Scale” developed by “JOHAN ERIKSON” (2007) was adopted to apply, that was reliable on the Indian population. It explains one’s perception understanding about the game. There was a list of fourteen attributes exercised that is represented by three domains of

Athletic Intelligence Physical (p), technical (t) and Meta cognitive (mc). The data collected was analysed by computing descriptive statistics.

### IV. RESULTS AND DISCUSSIONS

The data was analyzed by employing descriptive statistics and the results with regard to the highest and lowest attribute among different sports is presented from table no. 1 to table no. 7 and the overall highest and the lowest attribute among selected sport is presented in table 8:

**Table: 1 Highest & lowest mean on the Attribute Rating Scale in Baseball**

| S.NO. | ATTRIBUTES                     | MEAN (m) | SD   | ATTRIBUTES                      | MEAN (m) | SD   |
|-------|--------------------------------|----------|------|---------------------------------|----------|------|
|       | <b>Highest Rated</b>           |          |      | <b>Lowest Rated</b>             |          |      |
| 1     | Movement/ motion patter (p)*** | 7.33     | .58  | Strength (p)***                 | 5.67     | 1.16 |
| 2     | Placement on the field (t) **  | 7.00     | .56  | Dribble (t)**                   | 5.33     | .58  |
| 3     | Tackle (p)***                  | 6.67     | 1.16 | Ply metrics (p)***              | 5.67     | 1.16 |
| 4     | Shots (t)**                    | 6.33     | .58  | Criticize fellow players (p)*** | 5.67     | .58  |
| 5     | Anticipating the game (mc)*    | 6.33     | .58  | Endurance (p)***                | 6.00     | 1    |

\*(mc) metacognitive, \*\* (t) technical, \*\*\* (p) physical

Table no. 1 indicating the five Highest and Lowest Rated Attributes in Baseball. The five Highest Rated Attributes in Baseball were: Movement/ Motion pattern (p) 7.33, Placement on the field (t) 7.00, Tackle (p) 6.67, Shots (t) 6.33 and

Anticipating the game (mc) 6.33. In contrast, the Lowest Rated Attributes were: Strength (p) 5.67, Dribble (t) 5.33, Ply metrics (p) 5.67, Criticize fellow players (p) 5.67 and Endurance (p) 6.00.

**Table: 2 Highest & lowest mean on the Attribute Rating Scale in Basketball**

| S.NO. | ATTRIBUTES                        | MEAN (m) | SD   | ATTRIBUTES                      | MEAN (m) | SD   |
|-------|-----------------------------------|----------|------|---------------------------------|----------|------|
|       | <b>Highest Rated</b>              |          |      | <b>Lowest Rated</b>             |          |      |
| 1     | Pass (t)**                        | 7.17     | .75  | Criticize fellow players (p)*** | 3.67     | 3.08 |
| 2     | Endurance(p)***                   | 6.83     | .75  | Ply metrics (mc)*               | 5.83     | .75  |
| 3     | Strength (p)***                   | 6.83     | .75  | Tackle (p)***                   | 6.33     | .82  |
| 4     | Follow their team’s tactics (mc)* | 6.67     | 1.51 | Take the “right” decision (mc)* | 6.33     | 1.37 |
| 5     | Take quick decisions (p)***       | 6.67     | 1.21 | Placement on the field (t)***   | 6.40     | .894 |

\*(mc) meta cognitive, \*(t) technical, \*\*\* (p) physical

Table no. 2 indicating the five Highest and Lowest Rated Attributes in Basketball. The five Highest Rated Attributes in Basketball were: Pass (t) 7.17, Endurance (p) 6.83, Strength (p) 6.83, Follow their team’s tactics (mc) 6.67 and Take quick

decisions (mc) 6.67. In contrast, the Lowest Rated Attributes in Basketball were: Criticize fellow players (p) 3.67, Ply metrics (p) 5.83, Tackle (p) 6.33, Take the “right” decisions (mc) and Placement on the field (t) 6.40.

**Table: 3 Highest & lowest mean on the Attribute Rating Scale in Cricket**

| S.NO. | ATTRIBUTES                       | MEAN (m) | SD   | ATTRIBUTES                        | MEAN (m) | SD   |
|-------|----------------------------------|----------|------|-----------------------------------|----------|------|
|       | Highest Rated                    |          |      | Lowest Rated                      |          |      |
| 1     | Strength (p)***                  | 6.60     | .55  | Dribble (t)**                     | 3.80     | 1.79 |
| 2     | Shots (t)**                      | 6.40     | 1.52 | Follow their team's tactics (mc)* | 4.60     | 1.67 |
| 3     | Take the "rights" decisions(mc)* | 6.20     | 1.64 | Ply metrics (p)**                 | 4.80     | 1.30 |
| 4     | Endurance (p)**                  | 6.00     | .71  | Criticize fellow players (p)**    | 5.20     | 1.92 |
| 5     | Anticipating the game (mc)*      | 6.00     | 1.87 | Placement on the field (t)*       | 5.40     | .55  |

\*(mc) meta cognitive, \*\* (t) technical, \*\*\* (p) physical

Table no. 3 indicating the five Highest and Lowest Rated Attributes in Cricket. The five Highest Rated Attributes in Cricket were: Strength (p) 6.60, Shots (t) 6.40, Take the "right" decisions (mc) 6.20, Endurance (p) 6.00 and Anticipating the

game (mc) 6.00. Whereas, the Lowest Rated Attributes were: Dribble (t) 3.80, Follow their team's tactics (mc) 4.60, and criticize the fellow players (p) 5.20 and Placement on the field (t) 5.40.

**Table: 4 Highest & lowest mean on the Attribute Rating Scales in Football**

| S.NO. | ATTRIBUTES                      | MEAN (m) | SD   | ATTRIBUTES                        | MEAN (m) | SD   |
|-------|---------------------------------|----------|------|-----------------------------------|----------|------|
|       | Highest Rated                   |          |      | Lowest Rated                      |          |      |
| 1     | Placement on the field (t)**    | 6.43     | .98  | Dribble (t)**                     | 4.55     | 1.21 |
| 2     | Endurance (p)***                | 6.09     | .94  | Movement/ motion pattern (p)***   | 4.82     | 1.33 |
| 3     | Shots (t)**                     | 6.00     | 1.33 | Criticize fellow players (p)***   | 4.91     | 1.22 |
| 4     | Take the 'right' decision (mc)* | 6.00     | 1.10 | Ply metrics (p)***                | 5.40     | 1.27 |
| 5     | Ply metrics (p)***              | 5.91     | 1.27 | Follow their team's tactics (mc)* | 5.73     | 1.19 |

\*(mc) meta cognitive, \*\* (t) technical, \*\*\* (p) physical

Table no. 4 indicating the five Highest and Lowest Rated Attributes in Football. The five Highest Rated Attributes in the Football were: Placement on the field (t) 6.43, Endurance (p) 6.09, Shots (t) 6.00, Take the "right" decisions (mc) 6.00 and Ply

metrics (p) 5.91. The Lowest Rated Attributes were found to be: Dribble (t) 4.55, Movement/ Motion pattern (p) 4.82, criticize the fellow players (p) 4.91, Ply metrics (p) 5.40 and Follow their team's tactics (mc) 5.73.

**Table: 5 Highest & lowest mean on the Attribute Rating Scale in Handball**

| S.NO. | ATTRIBUTES                        | MEAN (m) | SD   | ATTRIBUTES                      | MEAN (m) | SD   |
|-------|-----------------------------------|----------|------|---------------------------------|----------|------|
|       | Highest Rated                     |          |      | Lowest Rated                    |          |      |
| 1     | Take quick decisions (mc)*        | 6.82     | 1.25 | Criticize fellow Players (p)*** | 4.82     | 2.04 |
| 2     | Follow their team's tactics (mc)* | 6.45     | .93  | Endurance (p)***                | 5.73     | 1.19 |
| 3     | Movement/ motion pattern (p)***   | 6.36     | 1.29 | Strength (p)***                 | 5.82     | 1.47 |
| 4     | Tackle (p)***                     | 6.36     | 1.21 | Ply metrics (p)***              | 6.00     | 1.10 |
| 5     | Pass (t)**                        | 6.27     | 1.19 | Take the 'right' decision (mc)* | 6.09     | 1.14 |

\*(mc) meta cognitive, \*\* (t) technical, \*\*\* (p) physical

Table no. 5 indicating the five Highest and Lowest Rated Attributes in Handball Players. The five Highest Rated Attributes in Handball were: Take quick decisions (p) 6.82 Follow their team's tactics (mc) 6.45, Movement/ Motion pattern (p) 6.36,

Tackle (p) 6.36 and Pass (t) 6.27. In contrast, the Lowest Rated Attributes were found to be: Criticize fellow players (p) 4.82, Endurance (p) 5.73, Strength (p) 5.82, Ply metrics (p) 6.00 and Take the "right" decisions (mc) 6.09.

**Table: 6 Highest & lowest mean on the Attribute Rating Scale in Hockey**

| S.NO. | ATTRIBUTES                        | MEAN (m) | SD   | ATTRIBUTES                      | MEAN (m) | SD   |
|-------|-----------------------------------|----------|------|---------------------------------|----------|------|
|       | Highest Rated                     |          |      | Lowest Rated                    |          |      |
| 1     | Tackle (p)***                     | 6.71     | .76  | Criticize fellow players (p)*** | 4.71     | 1.38 |
| 2     | Strength (p)***                   | 6.71     | .49  | Take the 'right' decision (mc)* | 5.29     | .95  |
| 3     | Dribble (t)**                     | 6.43     | .98  | Movement/ motion pattern (p)*** | 5.43     | .98  |
| 4     | Follow their team's tactics (mc)* | 6.00     | 1.16 | Ply metrics (p)***              | 5.67     | .82  |
| 5     | Shots (p)***                      | 6.00     | 1.63 | Anticipating the game (mc)*     | 5.71     | .95  |

\*(mc) meta cognitive, \*\* (t) technical, \*\*\* (p) physical.

Table no. 6 indicating the five Highest and Lowest Rated Attributes in Hockey. The five Highest Rated Attributes in Hockey were: Tackle (p) 6.71, Strength (p) 6.71, Dribble (t) 6.43, Follow their team's tactics (mc) 6.00 and Shots (p) 6.00. In

contrast, the Lowest Rated Attributes in Hockey were: Criticize the fellow players (p) 4.71, Take the "right" decisions (mc) 5.29, Ply metrics (p) 5.67 and Anticipating the game (mc) 5.71.

**Table: 7 Highest & lowest mean on the Attribute Rating Scale in Volleyball**

| S.NO. | ATTRIBUTES                        | MEAN (m) | SD   | ATTRIBUTES                      | MEAN (m) | SD   |
|-------|-----------------------------------|----------|------|---------------------------------|----------|------|
|       | Highest Rated                     |          |      | Lowest Rated                    |          |      |
| 1     | Take quick decision (mc)*         | 6.55     | 1.51 | Movement/ motion pattern (p)*** | 5.00     | 1.73 |
| 2     | Follow their team's tactics (mc)* | 6.18     | 1.40 | Dribble (t)**                   | 5.12     | 1.13 |
| 3     | Endurance (p)***                  | 6.00     | 1.18 | Placement on the field (t)**    | 5.22     | 1.39 |
| 4     | Take the "right" decision (mc)*   | 6.00     | 1.34 | Strength (p)***                 | 5.36     | 1.28 |
| 5     | Pass (t)**                        | 5.82     | 1.32 | Anticipating the game (mc)*     | 5.36     | 1.28 |

\*meta cognitive (mc), \*\* technical (t), \*\*\* physical (p)

Table no. 7 indicating the five Highest and Lowest Rated Attributes in Volleyball. The five Highest Rated Attributes in Volleyball were: Take quick decision (mc) 6.55, Follow their team's tactics (mc) 6.18, Endurance (p) 6.00, Take the "right"

decision (mc) 6.00 and Pass (t) 5.82. Whereas, the Lowest Rated Attributes were: Movement/ Motion pattern (p) 5.00, Dribble (t) 5.12, Placement on the field (t) 5.22, Strength (p) 5.36 and Anticipating the game (mc) 5.36 respectively.

**Table: 8 Highest and lowest mean on the Attribute Rating Scale among selected games.**

| S.NO                 | ATTRIBUTES                      | MEAN (m) (54) | STANDARD DEVIATION (SD) |
|----------------------|---------------------------------|---------------|-------------------------|
| <b>Highest Rated</b> |                                 |               |                         |
| 1                    | Take quick decisions (mc)*      | 6.32          | 1.24                    |
| 2                    | Pass (t)**                      | 6.07          | 1.27                    |
| 3                    | Shot (t)**                      | 6.06          | 1.35                    |
| 4                    | Tackle (p)***                   | 6.06          | 1.30                    |
| 5                    | Endurance (p)***                | 6.04          | 1.0                     |
| <b>Lowest Rated</b>  |                                 |               |                         |
| 1                    | Criticize fellow players (p)*** | 4.93          | 1.81                    |
| 2                    | Dribble (t)**                   | 5.45          | 1.51                    |
| 3                    | Ply metrics (p)***              | 5.56          | 1.13                    |
| 4                    | Movement/ motion pattern (p)*** | 5.65          | 1.43                    |

|   |                              |      |      |
|---|------------------------------|------|------|
| 5 | Placement on the field (t)** | 5.90 | 1.30 |
|---|------------------------------|------|------|

\*(mc) Meta cognitive, \*\* (t) technical, \*\*\* (p) physical

Table no. 8 Summarizes data for the five Highest Rated Attributes for the total number of participants were: Take quick decisions (MC) 6.32, Pass (t) 6.07, Shot (t) 6.06, Tackle (p) 6.06 and Endurance (p) 6.04. These factors of Athletic Intelligence were found to be more contributing in team game performance. In Contrast, the five Lowest Rated Attributes were: Criticize fellow players (P) 4.93, Dribble (t) 5.45, Ply metrics (p) 5.56, Movement/ motion pattern (p) 5.65 and Placement on the field (t) 5.90.

## V. CONCLUSIONS

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

1. In Baseball, physical attribute is the highest rated, whereas the lowest attribute was technical.
2. In Basketball, technical attribute is rated highest and lowest rating has been assigned to the physical.
3. In Cricket, physical attribute is rated highest whereas, the dribble has been rated lowest because it is not required in cricket.
4. In Football, the highest and the lowest attribute is ascribed to technical.
5. In Handball, meta-cognitive attribute has been rated the highest and the lowest rated is physical.
6. In Hockey, both the highest and the lowest rated attribute have been considered as physical.
7. In Volleyball, meta-cognitive has been considered as the highest ranked attribute and physical attribute as the lowest rated.
8. In team sport the meta-cognitive has been attributed as the highest attribute and technical is selected as the second highest attribute.
9. The physical attribute has been rated as lowest attribute among selected sports.

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