



ISSN: 2456-0057

IJPNPE 2016; 1(2): 164-166

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www.journalofsports.com

Received: 21-05-2016

Accepted: 22-06-2016

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## A comparative study of problem solving ability of national, state and district level female badminton players of Maharashtra

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### Abstract

Association between sports performance and cognitive factors are very complex. This research examines the problem solving ability of national, state and district level female badminton players of Maharashtra. To conduct the study 25 national level female badminton players, 25 state level female badminton players and 25 district level female badminton players of Maharashtra were selected as sample. The age range of selected female badminton players was 19 to 28 years. To assess problem solving ability of selected female badminton players of Maharashtra, Problem Solving Ability Scale prepared by Sharmila and Naga Subramani (2011) was preferred. One Way Analysis indicate that problem solving ability of national female badminton players was significantly higher as compared to state and district level female badminton players. The results are discussed in the light of association between cognitive abilities and sports performance.

**Keywords:** Badminton, problem solving ability

### Introduction

Problem solving ability is a mental process. It tries to discover, analyse and then try to solve the problem. Problem solving ability is meant to solve the issues that are hindrance to our goals. The first step of problem solving involves identification, classification of a situation causing problems. The second step of problem solving is gathering information on problem situation or issue while the third step is to allocate resource to manage the problem while searching for possible answers to remove it and afterwards monitoring the progress. Thornton (1998) [7] included proper strategies, use of latest techniques and planning to solve an issue in the definition of problem solving ability. Goldstein and Levin (1987) [2] defined problem solving as complex process involving higher order cognition process. In sports quite a few problematic issues can be solved by situation specific probes. It is essential for a sportsperson to deal with problems associated with tactical, technical, psychological or environmental circumstances. Situation is no different for badminton players. Like any other sport, different factors play a significant role in determining the performance level of badminton players. However, great importance is assigned to biomechanical, psychological, physiological parameters in competitive sports. Researchers like Sorenson (2010) [6], Watanabe *et al.* (2011) [9], Zivdar *et al.* (2012) [10], Soltani *et al.* (2012) [5], Attri (2013) [11], Singh *et al.* (2016) [4], Rakhi Kumari and Rajpal (2017) [3] examined biomechanical, motor fitness components, psychological and physiological characteristics of badminton player for assessment of their playing ability. Despite extensive research work on badminton player, cognitive ability such as problem solving has not been studied especially in the light of level of participation. Hence the present study was planned to assess problem solving ability of national, state and district level female badminton players.

### Objective

The single objective of the present study was to compare problem solving ability of national, state and district level female badminton players.

### Hypothesis

In the present study it was hypothesized that problem solving ability of national, state and district level female badminton players will differ significantly with each other.

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## Methodology

The following methodological steps were taken in order to conduct the present study.

## Sample

To conduct the study 25 national level female badminton players, 25 state level female badminton players and 25 district level female badminton players of Maharashtra were selected as sample. The age range of selected female badminton players was 19 to 28 years. Purposive sampling was used for selection of subjects.

## Tools

To assess problem solving ability of female badminton players, Scale constructed by Sharmila and Naga Subramani

(2011) was used. It consists of 40 statements. Five point likert scale was used to obtain response. The Guttman split half reliability of this scale is 0.62 and it enjoys high content validity.

## Procedure

Desired number of female badminton players was selected according to inclusion criteria of the present study. Problem solving ability scale was administered to each subject while following standard methodological procedure. After this, the scoring was completed which was based on 5 point likert scale. The scored responses of each subject was tabulated and One Way ANOVA was used for data analysis.

## Result and Discussion

**Table 1:** One way ANOVA: Comparison of Problem Solving Ability of National, State and District Level Female Badminton Players

Groups	N	Problem Solving Ability	
		Mean	S.D.
National Level Female Badminton Players	25	126.00	16.27
State Level Female Badminton Players	25	120.72	14.87
District Level Female Badminton Players	25	113.32	13.30
F=4.58, $p < .01$			

Perusal of One Way ANOVA analysis revealed statistically significant difference in problem solving ability of national, state and district level female badminton players at .01 level of significance criteria. (F=4.58,  $p < .01$ ) After obtained

significant difference on problem solving ability of female badminton players of three study groups, least significance difference method was used for further analysis. Results shown in table 2.

**Table 2:** Least Significant Difference Test with Significance Level .05

Mean (I)	Mean (J)	Mean Difference (I-J)
National Level Female Badminton Players	State Level Female Badminton Players	5.28
	District Level Female Badminton Players	12.68*
State Level Female Badminton Players	National Level Female Badminton Players	-5.28
	District Level Female Badminton Players	7.40
District Level Female Badminton Players	National Level Female Badminton Players	-12.68*
	State Level Female Badminton Players	-7.40

\* Significant at .05 level

## The LSD test yielded following results

- Statistically non significant difference on problem solving ability was observed between national and state level female badminton players. (Mean difference = 5.28,  $p > .05$ )
- Problem solving ability of national female badminton players was found to be significantly high as compared to district level female badminton players. (Mean difference = 12.68,  $p < .05$ )
- Statistically non significant difference on problem solving ability was observed between state and district level female badminton players. (Mean difference = 7.40,  $p > .05$ )

The result indicate better problem solving ability in national female badminton players as compared to state and district level female badminton players although some of statistical facts were not significant. Still it gives clear indication that ability of national female badminton players to solve problems was better as compared to state and district level female badminton players. Volkamer (2009) [8] in a study reported that dealing with problems on and off the field is pre-requisite for sportsperson. In this context the results of the present study also confirms this standpoint scientifically.

## Conclusion

On the basis of result it was concluded that problem solving ability under the umbrella of cognitive ability was better in national female badminton players as compared to state and district level female badminton player. It may also be concluded that higher order cognition is essential for female badminton players to excel.

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