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Comparative Study of Physical Fitness Component between Haryana and Delhi Badminton Male Players

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Abstract
The purpose of the study was to compare the physical fitness components between Haryana and Delhi badminton male players. Total one hundred and fifty male badminton players (Haryana 150 and Delhi 150) of 18-25 years ago were randomly selected from different badminton academies and different colleges of Haryana and Delhi state. Only selected physical fitness components i.e. the speed, explosive strength, endurance and agility were measured by using respective techniques and equipment. The between-group differences were assessed by using independent 't' test. The level of $p \leq 0.05$ was considered significant. The study revealed that Haryana badminton male players had significantly higher in explosive strength and shuttle run ($p<0.05$) than the Delhi badminton male players. Whereas Haryana and Delhi badminton male players have same type of speed and endurance.

Keywords: Physical fitness, Haryana, Delhi and Badminton

1. Introduction
Sedentary lifestyle is the most important problem for individual health growth. Low level of physical activity and sedentary lifestyle among students develop some diseases such as (cardio respiratory disease, obesity, high blood pressure and diabetes (Eirini *et al.*, 2007). Many efforts are accomplished to emphasis on physical fitness, importance, physical activity and health index. There are many research about this subject, hence there are increased prevalence of sedentary lifestyle in the population. Regular physical activity is an effective function of physiological systems, body weight preservation, and reduces the risk of diseases and an overall better quality of life.

Human life is based upon the body he keeps. All the activities of life are done with the help of body. Nature has created humans to perform various activities efficiently. Today modernization has made human life easier, as most of the work is performed by the machines. The sedentary life style of man has reduced the efficiency of humans. The less working capacity of humans has caused many problems like weakness, illness, chronic diseases, etc. In past our ancestors were quite healthy and fit. The big reason was that, they had to perform a lot of hard physical activity, like running, walking, jumping etc. The environment in past was less polluted. All these factors have reduced the efficiency of humans. Today, we desperately require physical fitness not only to improve our abilities but also to improve our health and wellness. This will also help to develop healthy environment around us along with community health, thus nation will be benefited. By die physical fitness programs, we can improve our fitness, wellness and health (Kundra, 2009) [5].

Physical fitness is a required element for all the activities in our society. Physical fitness of an individual is mainly dependent on lifestyle related factors such as daily physical activity levels. Physical fitness is also considered as the degree of ability to execute a physical task under various ambient conditions (Basak & Dutta., 2016) [1].

Physical fitness is one of the main factors in an athlete's success. It has been shown that a high level of the elements of physical fitness such as cardiovascular endurance, muscular strength, endurance, flexibility and speed are useful and effective in achieving success in a different sport. Nowadays before sending to competitions, teams are given a test for the evaluation of the physical status of their members (Zarl *et al.*, 2008) [8].

According to Thomas Kirt Cureton, Jr. Said, "Above the years, I have come to look upon Physical Fitness as a trunk of a tree that supports the many branches which represent all the activities and make life worth living: intellectual life, spiritual life, occupation, love life and social activities".

1.1 Statement of the Problem
The problem is entitled as "Comparative study of physical fitness components of Haryana and Delhi Badminton male players "

1.2 Objective of the Study
The following objectives were formulated
1. To compare the Speed, one of the physical fitness components, between Haryana and Delhi badminton male players.
2. To compare the Explosive strength, one of the physical fitness components, between Haryana and Delhi Badminton male players.
3. To compare the Endurance, one of the physical fitness components, between Haryana and Delhi Badminton male players.
4. To compare the Agility, one of the physical fitness components, between Haryana and Delhi Badminton male players.

1.3 Delimitations of the Study
1. The study was delimited to male players.
2. The study was delimited to selected colleges and badminton academies of Haryana and Delhi.
3. The sample was delimited to 300 (150 each) badminton players.
4. Only four components of physical fitness will be measured through physical fitness tests. (Speed, Explosive strength, Agility and Endurance).
5. The level of participation was delimited to District level and Inter-college level.
6. The study was ranged from 18-25 years.

1.4 Hypotheses
The following hypotheses were tested:
1. There will be no significant difference in the Speed between Haryana and Delhi badminton male players.
2. There will be no significant difference in the Explosive strength between Haryana and Delhi badminton male players.
3. There will be no significant difference in the Endurance between Haryana and Delhi badminton male players.
4. There will be no significant difference in the Agility between Haryana and Delhi badminton male players.

2. Method and procedure
2.1 Number of component
Total one hundred and fifty male badminton players (Haryana 150 and Delhi 150) of 18-25 years age were randomly selected from different badminton academies and different colleges of Haryana and Delhi state.

2.2 Component
Only selected physical fitness components i.e. the speed, explosive strength, endurance and agility were measured by using respective techniques and equipment.

2.3 Statistical technique
The between-group differences were assessed by using independent't' test. The level of $p \leq 0.05$ was considered significant.

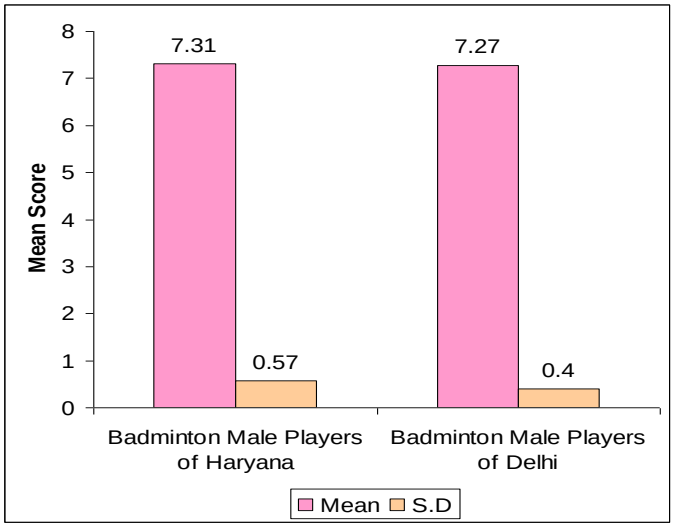
3. Result and Interpretation

Table 1: Comparison of speed (50 mt. dash) between badminton male players of Haryana and Delhi

Group	N	Mean	S.D	S.E.D	't' Ratio
Badminton Male Players of Haryana	150	7.31	0.57	0.576	0.594^{NS}
Badminton Male Players of Delhi	150	7.27	0.40		

NS= Not Significant
Table value of 't' at 0.05 =1.96; 0.01 =2.58

Table-1 explains about the comparison between badminton male players of Haryana and Delhi on speed. The mean score 7.31 of the speed of Haryana badminton male players is higher than the mean score 7.27 of Delhi badminton male players, but the 't' value (0.594) is not significant at any level of significance
Here table value (1.96 at 0.05 and 2.58 at 0.01) is more than the calculated value (0.594). So the null hypothesis is retained. Hence, there is no significance difference between Badminton male players of Haryana and Delhi on speed (50 mt. dash). so it can be concluded that badminton players of Haryana and Delhi have almost same type of speed.



Graph 1: Graphical representation of speed (50 mt. dash) between male players of Haryana and Delhi

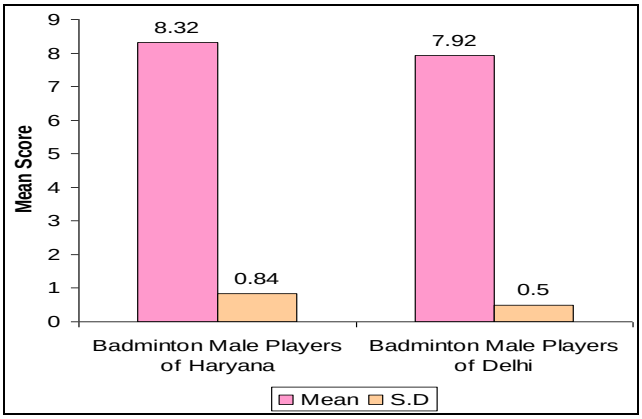
Table 2: Comparison of explosive strength (standing broad jump) between male players of Haryana and Delhi

Group	N	Mean	S.D	S.E.D	't' Ratio
Badminton Male Players of Haryana	150	8.32	0.84	0.804	4.881**
Badminton Male Players of Delhi	150	7.92	0.50		

** = Significant at 0.01 level
Table value of 't' at 0.05 =1.96; 0.01 =2.58

Table-2 explains about the comparison between badminton male players of Haryana and Delhi on explosive strength. The mean score 8.32 of the explosive strength of Haryana badminton male players is higher than the mean score 7.92 of Delhi badminton male players which shows a significant

difference between the mean score of both the groups.
Here table value (1.96 at 0.05 and 2.58 at 0.01) is lesser than the calculated value (4.881). The null hypothesis is rejected. Hence, there is a significance difference between Badminton male players of Haryana and Delhi on explosive strength (standing broad jump).
So it can be concluded that the badminton players of Haryana is better in standing broad jump as compared to badminton players of Delhi.



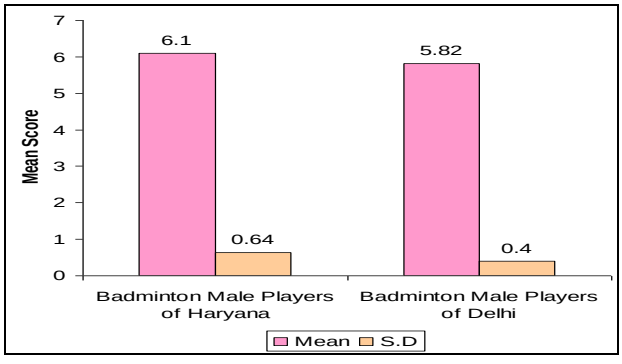
Graph 2: Graphical representation of explosive strength (standing broad jump) between male players of Haryana and Delhi

Table 3: Comparison of agility (shuttle run) between male players of Haryana and Delhi

Group	N	Mean	S.D	S.E.D	't' Ratio
Badminton Male Players of Haryana	150	6.10	0.64	0.620	4.459*
Badminton Male Players of Delhi	150	5.82	0.40		

**Significant at 0.01 level
Table value of 't' at 0.05 =1.96; 0.01 =2.58

Table-3 explains about the comparison between badminton male players of Haryana and Delhi on agility. The mean score 6.10 of the agility of Haryana badminton male players is higher than the mean score 5.82 of Delhi badminton male players which shows significant difference between the mean score of both the groups.
Here table value (1.96 at 0.05 and 2.58 at 0.01) is less than the calculated value (4.559). The null hypothesis is rejected. Hence, there is a significance difference between Badminton male players of Haryana and Delhi on agility (shuttle run).
The magnitude of mean difference being higher in Haryana badminton male players, so it can be concluded that they were better in shuttle run than Delhi badminton male players.



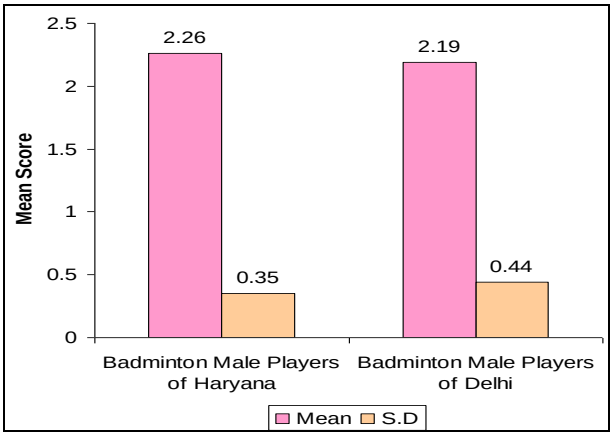
Graph 3: Graphical representation of agility (shuttle run) between male players of Haryana and Delhi

Table 4: Comparison of endurance (600 mt. run) between male players of Haryana and Delhi

Group	N	Mean	S.D	S.E.D	't' Ratio
Badminton Male Players of Haryana	150	2.26	0.35	0.046	1.436^{NS}
Badminton Male Players of Delhi	150	2.19	0.44		

NS = Not Significant
Table value of 't' at 0.05 =1.96; 0.01 =2.58

Table-4 explains about the comparison between badminton male players of Haryana and Delhi on endurance. The mean score 2.26 of the endurance of Haryana badminton male players is higher than the mean score 2.19 of Delhi badminton male players which shows no significant difference between the mean score of both the groups.
Here table value (1.96 at 0.05 and 2.58 at 0.01) is greater than the calculated value (1.436). The null hypothesis is accepted. Hence, there is no significance difference between Badminton male players of Haryana and Delhi on endurance (600 mt. run). So it can be concluded badminton male players of Haryana and Delhi almost have same type of endurance.



Graph 4: Graphical representation of endurance (sit and reach run) between male players of Haryana and Delhi

3.1 Conclusion of the study

On the basis of the findings of the present study, the following conclusions have been drawn:

- Badminton players of Haryana and Delhi have almost same type of speed.
- Badminton players of Haryana is better in standing broad jump as compared to badminton players of Delhi.
- Badminton players of Haryana were better in shuttle run than Delhi badminton male players.
- Badminton male players of Haryana and Delhi almost have same type of endurance.

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