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Analysis of Physical Fitness Components and Playing Ability of Tamilnadu Badminton Junior Ranking Players

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ABSTRACT

The purpose of this study was to evaluate the analysis of physical fitness components and playing ability of Tamil Nadu Badminton Junior Ranking Players. To achieve this, 60 badminton players (40 boys and 20girls) were selected from various districts of Tamil Nadu and age ranged from 13 to 15 years. Physical fitness components namely speed, agility, strength, flexibility, reaction time, balance, leg power and explosive power. It was measured by conducting 30 mts dash, 10 yards shuttle run, sit-up test, bend and reach test, Nelson hand reaction, stork balance, Sargent jump and standing broad jump. Hicks clear skill test were used to assess the badminton skill of the selected subjects. Pearson Product moment coefficient of correlation with significant level at (p<0.05) was used to examine the correlations between smash skill and speed, agility, strength, flexibility, reaction time, balance, leg power and explosive power. The analysis of data of boys badminton players revealed that clear skill was positively correlated with the strength (r =0.318), and explosive power (r = 0.388), whereas agility (r = -0.476) was negatively correlated with the clear skill. No significant correlation was observed between speed, flexibility, reaction time, balance, leg power and clear skill of boys badminton players. The results in the case of girls badminton players shows that the clear skill was positively correlated with flexibility (r = 0.541), leg power (r = 0.596), explosive power(r=0.593), and negatively correlated with the speed (r = -0.381), agility (r = -0.669). On the basis of results no significant correlation was observed between strength, reaction time, balance and clear skill of girls badminton players.

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Introduction

Badminton is a moderately popular game in India and the level of success on the international level has been quite fluctuating. However on the domestic level, India has always been rich with the young talented badminton squad. These days India's domestic badminton circuit is teeming with a crop of talented youngsters who aspire to make it big at the international level. They draw inspiration from the feats of Indian badminton legends like Prakash Padukone and Pullela Gopichand and who struck gold at the big stage. Read on to explore more about the famous badminton players in the country. The game of badminton has its roots well laid in the Indian soil. A descendent of Battledore and Shuttlecocks, the game was originally christened Poona. In the 1870s, British army officers played this game in the city of Pune in India, which was then called Poona and hence the game was also termed as Poona. Getting fond of the game, the British carried the equipment to their own country as well. Unlike the West, the game of badminton in India may lack the glamour and glitz which is mostly seen in cricket and tennis; it is still being taken up by a healthy number of youngsters across the country.

Methods

The purpose of this study was to evaluate the analysis of physical fitness components and playing ability of Tamil Nadu badminton junior ranking players. To achieve this, 60 badminton players (40 boys and 20girls) were selected from various districts of Tamilnadu and age ranged from 13 to 15 years. Physical fitness components namely speed, agility, strength, flexibility, reaction time, balance, leg power and explosive power. It was measured by conducting 30 mts dash, 10 yards shuttle run, sit-up test, bend and reach test, Nelson hand reaction, stork balance, Sargent jump and standing broad jump. Hicks clear skill test were used to assess the badminton skill of the selected subjects. Pearson Product moment coefficient of correlation with significant level at (p<0.05) was used to examine the correlations between smash skill and speed, agility, strength, flexibility, reaction time, balance, leg power and explosive power.

Results

Table 1 shows that the mean for speed (30 meter sprint) were5.04second (S.D= 0.51) and 6.14 second (S.D= 0.48) for boys and girls badminton players respectively, and (SED) for boys0.11 and girls 0.10 respectively. For agility (10 yards shuttle run) 10.20 second (S.D= 0.88) and 11.78 second (S.D= 0.55) and (SED) for boys 0.17 and girls 0.12 respectively. For strength (sit- ups) 47.13 (S.D= 8.66) and 25.80, (S.D= 11.91)and (SED) for boys 2.23 and girls 3.07 respectively. For flexibility (bend and reach test) 5.30 inch (S.D= 2.54) and 3.20inch (S.D=1.93) and (SED) for boys 0.55 and girls 0.42respectively. For reaction time (Nelson hand reaction scale)2.60 second (S.D= 0.38) and 5.54 second (S.D= 7.45)

And (SED) for boys 0.85 and girls 1.62 respectively. For balance (stork balance test) 7.48 second and (S.D=5.78) mean 4.18and (S.D = 3.53) and (SED) for boys 0.26 and girls 0.77 respectively. For leg power (Sargent jump) 16.61 inch (S.D=4.51), and 10.92 inch (S.D=54.1) and (SED) for boys 0.98 and girls 0.57 respectively. For explosive power (standing broad jump) 76.01 inch (S.D=10.62), and 54.1 inch (S.D=7.52) and(SED) for boys 2.31 and girls 1.61 respectively and clear skill73.38 (S.D=9.51) and 53.38 (S.D=17.08) and (SED) for boys2.07 and girls 3.72 respectively. The calculated t value for speed was -7.74*, agility -6.29*, strength 5.89 *, flexibility 3.07 *, reaction time -1.81, balance 2.185*, leg power 4.711*, explosive power 8.57* and clear skill 3.90*. The value of 't'test was found significant at p < 0.05 level in case of speed, agility, strength, flexibility, reaction time, leg power, explosive power, clear skill and smash skill except the balance.

 Table 1. Mean Difference Between The Physical Fitness

 Components And Playing Ability Of Tamilnadu

Badminton Junior Ranking Players								
Sl:No	Variables	Boys		Girls		Boys	Girls	ʻt'
		Mean	S.D	Mean	S.D	SED	SED	
1	Speed	5.04	0.51	6.14	0.48	0.11	0.10	-
								7.742
2	Agility	10.20	0.88	11.78	0.55	0.17	0.12	-
								6.290
3	Strength	47.13	8.66	25.80	11.91	2.23	3.07	5.894
4	Flexibility	5.30	2.54	3.20	1.93	0.55	0.42	3.073
5	Reaction	2.60	0.38	5.54	7.45	0.85	1.62	-
	Time							1.811
6	Balance	7.48	5.78	4.18	3.53	1.26	0.77	2.185
7	Leg	16.61	4.51	10.92	2.64	0.98	0.57	4.711
	Power							
8	Explosive	76.1	10.62	54.1	7.52	2.31	1.61	8.570
	Power							
9	Clear Skill	73.38	9.51	53.38	17.08	2.07	3.72	3.900

*Significant at 0.05 level of confidence



Figure 1. Mean Difference Between the Physical Fitness Componentsand Playing Ability Of Tamilnadu Badminton Junior Ranking Players.

Table 2 shows the descriptive analyses of physical fitness components and skill variables of both boys and girls badminton players. Table 2 indicated the all boys/girls badminton players had mean, SD, minimum, maximum, range and sum of squares of speed 5.73, 0.76, 4.48,7.53,3.05 and 344.21 for 30 meter sprint, mean of agility was10.85, 0.93, 8.99, 13.01, 4.02 and 651.42 for 10 yard shuttle run, mean of strength was 38.38, 13.40, 11.00, 62.00, 51.00and 2303.00 per min for sit ups, mean of flexibility was 3.97, 2.41, 0.78, 11.00, 10.22 and 238.76 for bend and reach, mean of reaction time

was 3.62, 4.57, 1.80, 32.00, 30.20 and 217.60 sec for nelson hand reaction test, mean of balance was 5.13, 4.78, 1.01, 20.00, 18.99 and 308.23 sec for stork balance test, mean of leg power was 13.99, 4.23, 6.00, 24.00, 18.00 and 839.50 inch for Sargent jump, mean of explosive power was 64.50, 12.99, 33.00, 94.00, 61.00 and 3870.00 inch for standing broad jump, mean of clear skill was 66.11, 16.85, 30.00, 93.00, 63.00 and 66.116.

 Table 2. Descriptive Analysis Between the Physical Fitness

 Components and Playing Ability Of Tamilnadu
 Badminton Junior Ranking Players

Individual	Mean	Standard	Minimum	Maximum	Range	Sum
Sports		Deviation				of
-						Variance
Speed	5.73	0.76	4.48	7.53	3.05	344.21
Agility	10.85	0.93	8.99	13.01	4.02	651.43
Strength	38.38	13.40	11.00	62.00	51.00	2303.00
Flexibility	3.97	2.41	0.78	11.00	10.22	238.76
Reaction	3.62	4.57	1.80	32.00	30.20	217.60
Time						
Balance	5.13	4.78	1.01	20.00	18.99	308.23
Leg Power	13.99	4.23	6.00	24.00	18.00	839.50
Explosive	13.99	4.23	6.00	24.00	18.00	3870
Power						
Clear Skill	66.11	16.85	30.00	93.00	63.00	66.116



Figure 2. Descriptive Analysis Between the Physical Fitness Components and Playing Ability of Tamilnadu Badminton Junior Ranking Players

Table 3. Coefficient of Correlation of physical FitnessVariables With Clear Skill of Boys

Badminton Players				
Sl:No	Variable	R		
1	Speed	-0.299		
2	Agility	-		
		0.476*		
3	Strength	0.318*		
4	Flexibility	0.032		
5	Reaction Time	-0.151		
6	Balance	0.178		
7	Leg Power	0.193		
8	Explosive	0.388*		
	Power			

*Significant r.05 (38) =0.304

The table 3 shows that there was a significant relationship between physical fitness variables namely agility, strength, explosive power and clear skill of boy's badminton players. Table 3 indicated that the coefficient of correlation between clear skill and physical fitness variables namely speed (30 meter sprint), agility (shuttle run), strength (sit ups), flexibility (bend and reach), reaction time (nelson hand reaction), balance (stork balance), leg power (Sargent jump), explosive power (standing broad jump) for boys badminton players were r = -.299, $r = -0.476^*$, $r = 0.318^*$, r=0.032, r = -0.151, r = 0.178, r = 0.193, and $r = 0.388^*$ respectively.

 Table 4. Coefficient of Correlation of Physical Fitness

 Variables With Clear Skill of Girls Badminton Players

Sl:No	Variable	R
1	Speed	-
		0.381*
2	Agility	-
		0.669*
3	Strength	0.291
4	Flexibility	0.541*
5	Reaction Time	-0.136
6	Balance	0.236
7	Leg Power	0.596*
8	Explosive	0.593*
	Power	
0 = (1 0)	0.444	

*Significant r.05 (18) =0.444

The table 4 shows that there was a significant relationship between physical fitness variables namely speed, agility, flexibility, leg power, explosive power and clear skill of girl's badminton players. Table 4 indicated that the girls badminton players coefficient of correlation were -.381*, -0.669*, 0.291,0.541*, -0.136, 0.236, 0.596*, 0.593* for speed (30 meter sprint), agility (shuttle run), strength (sit ups), flexibility (bend and reach), reaction time (nelson hand reaction), balance (stork balance), leg power (Sargent jump), explosive power (standing broad jump) with the clear skill.

Table 5. Coefficient of correlation between the PhysicalFitness Components and PlayingAbility of Tamilnadu

D	aamint	on Junior	капкіпд	Player	S
	Sl:No	Variables	•	r'	

SI:INO	variables	·r		
1	Speed	-0.450*		
2	Agility	-0.67*		
3	Strength	0.428*		
4	Flexibility	0.295*		
5	Reaction Time	-0.397*		
6	Balance	0.233		
7	Leg Power	0.510*		
8	Explosive Power	0.613*		
*Significant r $05(58) = 250$				

*Significant r.05 (58) = .250

The table 5 shows that there were significant relationships between physical fitness variables namely speed, agility, strength, flexibility, reaction time, leg power, explosive power and clear skill of all boys & girls badminton players. Table 5 indicated that the all badminton players coefficient of correlation for speed (30 meter sprint), agility (shuttle run),strength (sit ups), flexibility (bend and reach), reaction time(nelson hand reaction), balance (stork balance), leg power(Sargent jump), explosive power (standing broad jump) with the clear skill were -.450*, -0.67*, 0.428*, 0.295*, -0.397*,0.233, 0.570*, and 0.613* with the clear skill.

Discussion of findings

The descriptive analysis of boys and girls badminton players reveals that there were significant difference obtained on speed, agility, strength, flexibility, reaction time, leg power, and explosive power, clear skill, and smash skill among boys and girls badminton players. No significant difference was observed between balance ability of boys and girls badminton players. The findings reveal that boys badminton players were superior in their physical abilities and skill than the girls badminton players. The analysis of data of boys badminton players revealed that clear skill was positively correlated with the strength (r = 0.321), and explosive power (r = 0.385), where as agility (r = -0.479) was negatively correlated with the clear skill. No significant correlation was observed between speed, flexibility, reaction time, balance, leg power and clear skill of boys badminton players. The finding may be attributed to the fact that clear skill ability depends upon combination of various factors. The speed, flexibility, reaction time, balance, leg power correlated with clear skill ability may not show significant relationship because in present study each physical fitness variable was correlated with clear skill separately. The results indicate that clear skill ability can be improved by agility, strength, and explosive power.

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