Relationship Between Playing Ability and Motor Fitness Component of Badminton Players

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Abstract - **Objectives of the study were to find out the relationship between playing ability and motor fitness components of badminton players. For the purpose researcher selected 30 male badminton players who had participated in intercollegiate competition of Sant Gadge Baba Amravati University Amravati with the help of simple random sampling method. JCR test was constructed to measure motor fitness component of players whereas for measuring playing ability three judges test was constructed during the competition. Test was based on the Hick's test. Three items, a clear test, a smash test and a strategy test and overall performance was tested. Results of the study indicated a positive relationship between the motor fitness components and playing ability of badminton players whereas in certain items it was found negligible.**

Index Terms - **Motor Fitness, Playing Ability, Badminton Players.**

INTRODUCTION

Every human being has a fundamental right to access to physical activities and sports which are essential for the full development of his personality. The freedom to develop physical, intellectual and moral power through physical education and sports must be guaranteed both within the education system and in other aspects of social life. Desirable traits of character are developed through sports, such as sportsmanship, discipline, observance of the rules of the games, self control and a spirit of fair play. Team playing encourages cooperation, leadership, fellowship and team spirit of fair play prepare sportsmen for the life . Sports has assumed world – wide importance. In a shrinking world which is coming nearer day by day. It is playing the important role in bringing the world nearer, people together at regional, national and international integration. It does not distinguish concept to all aspects of sports such as coaching and teaching.. the sports psychologists uses psychological assessment techniques and intervention strategies in

an effort to help individual to achieve their optimal performance . for top level performance it is very important to spot, select and nature a budding sportsman as it is recognized by all that athletes must possess some inherent qualities which can be developed by means of systematized and scientific training. For spotting and selecting of players, one must consider physique and fitness, as these qualities will help a long way towards better performance.

With the advancement of scientific research in the field of sports the last decades the researchers have consider so many things which are required for high performance in addition to specific skills; body shape and neuromuscular co-ordination etc. physical fitness and motor fitness are also essential factor for the purpose. In this competition era no doubt a high degree of motor fitness is necessary for success in all games and sports but the degree and order of its components may vary according to the nature of activity.

SIGNIFICANCE OF THE STUDY

The study was significant in following aspects:
1 Study was significant in finding out the relationship between motor fitness and playing ability of badminton players
2. Study was significant in finding out the relationship between leg strength, shoulder strength, agility and visual reaction time with playing ability of badminton players,

Hypothesis:
It was hypothesized that there would be positive relationship in motor fitness with playing ability of badminton players.

Delimitation:

1. Study was delimited to male badminton players participated in intercollegiate competition of SGB Amravati university Amravati
2. Age varied from 18 to 28 years
3. Study was delimited in following motor fitness component: leg strength, shoulder strength, agility and visual reaction time.

LIMITATIONS

1. Extracurricular activities were not under control of researcher.
2. Socio-economic condition of subjects was unknown.
3. Environmental condition was not under the control of researcher.
4. Dietary factor were not considered

SOURCES OF DATA

Players who participated in intercollegiate completion of SGB Amravati university Amravati were the sourced of data for the present study.

Selection of subject:
Subject was selected from Yavatmal district of Maharashtra. By using simple random sampling method 30 male subjects were selected. Age group of subjects was ranging from 18-28years.

Selection of test;
JCR test was used for measuring motor fitness of badminton players whereas for measuring playing ability Hick's badminton playing ability test was administered. Following were the reliability and validity of the test

Test items	Reliability coefficient	Validity coefficients			combined
		Judges rating of skill	Tournament score	Judges of playing ability	
Clear	0.894	0.640	0.462	0.662	0.606
Smash	0.526	0.564	0.481	0.634	0.545
strategy	0.420	0.642	0.542	0.687	0.606

METHODOLOGY

With the help of colleagues JCR test was administered for measuring the motor fitness of the payer. Hick's Badminton Playing ability test was administered to measure the Badminton Playing ability of players on the base of Hick's test researcher conducted three item test ,Clear , Smash, Strategy were administered . For the purpose researcher used three badminton court of HVSKM college of physical education during the intercollegiate competition.

ANALYSIS AND INTERPRETATION OF DATA

For analysis of the data multiple regression correlation technique was employed. Tabulates regression had been given below

Table-Inter correlation matrix

Test items	Chin ups	Vertical jump	Shuttle run	Reaction time (visual)	performance
Chin ups	1				
Vertical jump	-0.191	1			
Shuttle run	-0.020	-0.062	1		
Reaction time (visual)	0.251	-0.125	-0.189	1	
performance	0.246	0.046	0.264	0.033	1

The results of the analysis were verified up to which how extent they were interrelated to each other with the help of standard norms propounded by 'GLASS AND HOPKINS' (1996) for interpreting the data which are analysis with multiple regression correlation equation method . the following standard norms are as follows:

Coefficient (r)	Relationship
.0.00	Negligible
0.20-0.40	Low
0.40-0.60	Moderate
0.60-0.80	Substantial
0.80-1.00	High to very high

Summary of the inter correlation matrix (Table – I)

Sr.no.	Variable	Calculated r	Relationship
1	Chin up-vertical jump	-0.191	Negligible
2	Chin up-shuttle run	-0.020	Negligible
3	Chin up-reaction time	0.251	Low
4	Chin up – performance	0.246	Low
5	Vertical jump-shuttle run	-0.062	Negligible
6	Vertical jump-reaction time	-0.125	Negligible
7	Vertical jump-performance	0.046	Negligible
8	Shuttle run-reaction time	-0.189	Negligible
9	Shuttle run – performance	0.264	Low
10	Reaction time - performance	0.033	Negligible

From the above table it was found that the relationship of chin ups with vertical jump(-0.191) is negligible, chin ups with shuttle run (-0.020) is negligible, chin ups with reaction time (0.251) is low, chin ups with performance (0.246) is also low. Whereas vertical jump with shuttle run (-0.062), reaction time (-0.125), performance (0.046) was found negligible. It was also found that relationship of shuttle run with reaction time (-0.189) was negligible and with performance (0.264) was low whereas reaction time with performance (000.033) was negligible.

Table-2 Summary of different correlation

Multiple R	0.383
R Square	0.147
Adjusted R	0.010
Standard E	49.988

From the table, it can be seen that the R square is 0.147, the adjusted R square is 0.010 and std. error of the estimate was 49.98. it can be said that there is 38.3% contribution of motor fitness on badminton playing ability of players.

Table 3 Regression equation analysis

	Coefficient	S.E	t-test	p-value	Lower 95%	Upper 95%
Intercept	-4.151	154.235	0.027	0.979	321.804	313.501
Chin ups	5.729	4.177	1.372	0.182	-2.873	14.332
Vertical jump	3.139	4.998	0.628	0.536	-7.154	13.432
Shuttle run	11.951	7.96	1.501	0.146	-4.442	28.345
Reaction time Visual	33.418	184.343	0.181	0.858	346.243	412.079

Using Regression Coefficient shown in above table, the regression equation can be developed as follows:
From the above table it is clear that the γ – intercept i.e. $\alpha = 4.151$, $\beta 1 = 5.726$, $\beta 3 = 11.951$ and $\beta 4 = 33.418$
Hence the prediction equation is given as
$\gamma = \alpha + \beta 1\ X1 + \beta 2\ X2 + \beta 3 + X3 + \beta 4 + X4$
This can be written in numerical from as below

$\gamma = -4.151 + 5.726*\ 9.6 + 3.139*\ 18.97 + 11.951* + 10.65 + 33.418*\ 0.23$

To conclude, it may be interpreted the above regression is reliable as the R square is 0.147. in the other words the variable selected in the regression equation explain 14.7% of the total variability in the playing ability of badminton players. Therefore it may be interpreted that the variable selected in the model : chin ups, vertical jump, shuttle run, reaction time visual are good valid in estimating playing ability of badminton players.

Graphical representation of the mean of motor fitness components and performance of badminton players.
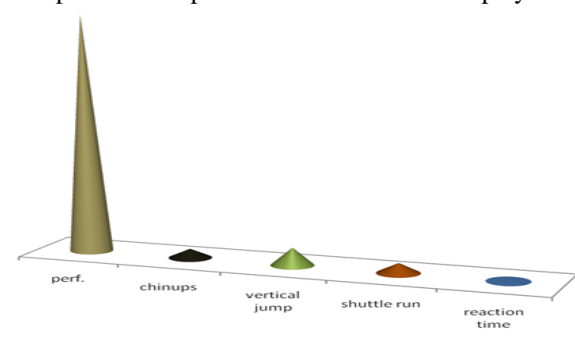
FINDING

The finding of the study reveals that the motor fitness was negligible related with playing ability of badminton player. This may be attributed to the matrix table, it was seen that vertical jump and reaction time

was negligible related with the playing ability of badminton player and chin ups and shuttle run was less related with the playing ability of badminton players. As the event badminton is strength, explosive power, agility and reaction time dominated the event. In overall numerical and statistical analysis of motor fitness with playing ability of badminton players, the relationship was found positive. In few component it was found negative and also negligible may be due to sampling error. Results of the study may be justified with the study of WAY; studied the relationship of general motor ability to skill test score in badminton. Results indicated a positive relationship between the different variables.

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