

Relationship between Agility and Playing Ability of Women Volleyball Players

Dr. Sheela K.S.¹

¹Associate Professor, Department of Physical Education, Gargi College, University of Delhi, India.

Received Dec 24, 2017; Accepted Jan 19, 2018; Published Jan 19, 2018

Abstract

Gargi College conducted the admission trail in volleyball (women- Sports Quota) for Undergraduate course in Delhi University for the session 2017-18. Total 216 women candidates have been applied under Sports quota in Delhi University and 105 students appeared for Volleyball selection trail on 27th June 2017 at Gargi College. The criteria of selection trial were divided into two categories, i.e. Game Specific Physical Fitness Test and Playing ability Test. Illinois test was selected to measure the agility of volleyball players. Fundamental skills of Passing and Service, Position Play (Specialized Zone) and Skill Application were selected to measure the playing ability of volleyball players. The purpose of the study was to examine the relationship between selected fitness test and volleyball playing ability among 105 applicants and their age ranged from 16-19 years. Mean and Standard deviation were used as descriptive statistics. Pearson Product Moment Coefficient of correlation with significant level at 0.05 was used to examine the correlations between volleyball playing ability with agility. The statistical analyzed was carried out using MS Excel and SPSS 16.0 version. The findings of the present study showed that there was significant relationship found between agility and playing ability of women volleyball players.

Key Words: Sports Quota, Agility, Illinois Test.

1. Introduction:

Gargi College was established in 1967 and has currently been awarded Grade-'A' by NAAC. It has on its rolls about 3864 students. It has progressed steadily to become one of the leading institutes of the University of Delhi. (Website, 2017)

The sport of volleyball has continued to increase in participation since its inception over one hundred years ago. Volleyball has become one of the most widely played participant sports in the world with over 200 million players. (Aagaard H., 1997). Volleyball is a competitive sport played on many different court surfaces depending on whether it is being conducted indoors or outdoors. Thus indoor volleyball is played upon a hard flat surface that is mostly made out of wood or other synthetic materials, while outdoor volleyball is played upon concrete, grass or most commonly sand. Agility is recognized as the ability to maintain and control body's position while rapidly moving and changing directions as a response to a stimulus. It seems to be related to athletic abilities like strength, power, speed and balance and it's a determinant of sport performance in field and court sports like volleyball, soccer and rugby. (Eugenia Gortsila et al, 2013)

Out of the 12914 applications received under the sports quota for admission to Delhi University colleges, 1557 are for football, 1411 for basketball, 1353 for athletics, 1087 applicants for cricket and 216 application in Women volleyball. (E-News, 2017). Gargi College conducted the admission trials in Volleyball for women category on 27th June 2017. Out of 216 applicants, 105 students were reported for the trial. The trial was divided into two category i.e. Game specific fitness test and Playing ability test.

1.1 Objectives of the Study:

1. To assess the agility of specific position in women volleyball players
2. To find out the relationship between agility and Playing ability among women volleyball players.

1.2 Hypothesis of the Study:

It was hypothesized that there would be a significant relationship between agility and playing ability test among women volleyball players.

1.3 Delimitation of the Study:

The study was delimited on the data was already collected during volleyball selection trials for sports quota undergraduate admission at Gargi College.

2. Research Methodology:

The data was already collected during admission trail in volleyball at Gargi College. The criteria used for the selection trial were Game specific fitness test and playing ability test. To measure the Game specific fitness test, Illinois agility test was used. Fundamental skill, under arm and overhead pass, service, position plays (Specialized Zone) and skill application variables were selected to measure the overall playing of volleyball players which was observed by three experts. The observed data recorded in quantity form and submitted to Delhi University Sports Council for further admission process. The Illinois test norms was modified to measure the agility of women players age ranging 16 to 19 years. The data was computed and analyzed by Pearson Product Moment Coefficient of correlation.

Agility

The ability to move the body accurately and rapidly indifferent directions (Siedentop, 2010)

Agility is the physical ability which enables an individual to rapidly change body position and direction in precise manner (Johnson, B.L. and Nelson, J., 1982)

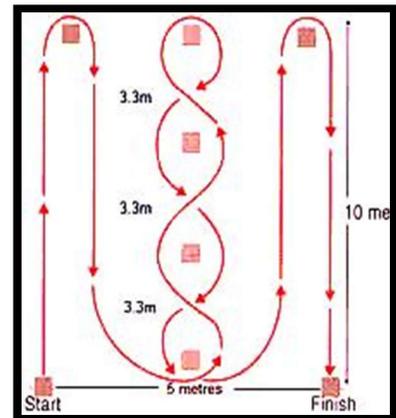
In the context of team sports, agility therefore comprises not only change of direction abilities but also perception and decision-making. In much the same way as speed expression, agility in the context of team sports is multifactorial (Gamble P., 2013).

Illinois Agility Test

Category	Female	Marks
Excellent	<17.0 seconds	10
Above Average	17.01-17.50 seconds	9
	17.51-18.00 seconds	8
	18.01-18.92 seconds	7
Average	18.93-19.85 seconds	6
	19.86-20.78 seconds	5
	20.79-21.79 seconds	4
	21.80-22.40 seconds	3
Below Average	22.41-23.00 seconds	2
	>23.00 seconds	1

The Illinois agility test (IAT) was used to determine the ability to accelerate, decelerate, turn in different directions, and run at different angles. **Description:** The length of the course is 10 meters and the width (distance between the start and finish points) is 5 meters. Four cones are used to mark the start, finish and the two turning points.

Another four cones are placed down the center an equal distance apart. Each



cone in the center is spaced 3.3 meters apart. Subjects should lie on their front (head to the start line) and hands by their shoulders.



Procedure: On the 'Go' command the stopwatch is started, and the athlete gets up as quickly as possible and runs around the course in the direction indicated, **without knocking the cones over**, to the finish line, at which the timing is stopped.

Scoring: The applicant gets two chances, with the

faster time taken and recorded in seconds. She has a choice to take just one attempt.

Fundamental Skill-Passing and Service

Candidates have asked to pass the under and overhead ball to each other and any five services (overhead or under arm) and data was observed by three experts in a numeric form.



Position Play

Candidates have asked to perform the skill as per her specialized zone/position like Attacking by Spiking, Defense by Libero and experts observed the ability and recorded in a numeric form.



and

Skill Application

The third parameter in playing ability was skill application, candidates have asked to perform all their skill in a match situation and experts observed their ability and give scored in a numeric form.

3. Result and Analysis:

Table.1 Assessment of Illinois Agility Test in Specific Position

S. No.	Position	No. of Attacker	Norms
1	Attacker	17	Average
		20	Above Average
		06	Excellent
	Total	43	
2	Libero	17	Average
		23	Above Average
		02	Excellent
	Total	42	
3	Setter	05	Average
		07	Above Average
	Total	12	
4	Universal	07	Average
		01	Above Average
	Total	08	
	Overall Total (N)	105	

Table 1 revealed the categorical norms of Illinois test of different position in volleyball, in respect to Attackers, 17 students belong from average category, 20 students belong from above average and 6 students belong from excellent category. Similarly, 17 Libero belong from average category, 23 students belong from above average and 2 students belong from excellent category. In respect to Setter, only 5 students belong from average category and 7 students belong from above average category, whereas 7 Universal belong from average category and 1 student belong from above average category.

Table 2 Descriptive statistics of agility and playing ability test

S. No.	Variables	Mean	Std. Deviation	N
1	Agility	7.42	1.70	105
2	Passing	6.59	.92	105
3	Service	6.72	.86	105
4	Position Play	9.80	1.33	105
5	Skill Application	9.96	1.38	105
6	Total	40.51	4.92	105

Table 2 revealed the mean and standard deviation values of Game specific fitness test and plying ability test i.e. Agility 7.42±1.70, Passing 6.59±0.92, Service 6.72±0.86, Position play 9.80±1.33, Skill Application 9.96±1.38 and overall total 40.51±4.92

Table 3 Pearson’s Product Moment Correlation between Agility to Playing Ability Components of women volleyball players. (Matrix)

Components	Pearson’s Product Moment Correlation	Agility	Passing	Service	Position Play	Skill Application	Total
Agility	Pearson Correlation	1	0.251**	0.250*	0.305**	0.288**	0.601**
	Sig (2-tailed)		.010	.010	.002	.003	.000
	N	105	105	105	105	105	105
Passing	Pearson Correlation	0.251**	1	0.773**	0.779**	0.702**	0.817**
	Sig (2-tailed)	.010		.000	.000	.000	.000
	N	105	105	105	105	105	105
Service	Pearson Correlation	0.250*	0.773**	1	0.797**	0.759**	0.835**
	Sig (2-tailed)	.010	.000		.000	.000	.000
	N	105	105	105	105	105	105
Position Play	Pearson Correlation	0.305**	0.779**	0.797**	1	0.869**	0.906**
	Sig (2-tailed)	.002	.000	.000		.000	.000
	N	105	105	105	105	105	105
Skill Application	Pearson Correlation	0.288**	0.702*	0.759**	0.869**	1	0.880**
	Sig (2-tailed)	.003	.000	.000	.000		.000
	N	105	105	105	105	105	105
Total	Pearson Correlation	0.601**	0.817**	0.835**	0.906**	0.880**	1
	Sig (2-tailed)	.000	.000	.000	.000	.000	
	N	105	105	105	105	105	105

****Correlation is significant at the 0.01 level (2-tailed)**

***Correlation is significant at the 0.05 level (2-tailed)**

Table 3 The result pertaining to the relationship between selected Game specific fitness test with volleyball playing ability components of women volleyball players which shows that co-efficient of co-relation between Agility and fundamental skill of passing is 0.251**, Agility and fundamental skill of service is 0.250*, Agility and Position play is 0.305**, Agility and Skill application is 0.288*, and finally overall co-efficient of co-relation between Agility and overall playing ability test is 0.601**.

4. Discussion on Hypothesis:

Research found the significant relationship between Game specific fitness test i.e. agility and playing ability components among the women volleyball players, hence the alternative hypothesis is accepted. The results of this study are parallel to other researches in this field and a meaningful relation between agility and playing ability in volleyball sports.

Author studied to determine the physical, physiological and motor skill variables of men volleyball players, which could best contribute in the playing ability of volleyball players. He found that among physical variables explosive power, agility and ankle flexibility were main contributors to volley ball player ability and cardiovascular endurance, lean body weight and pulse pressure among physiological variables were the best contributors to volleyball playing ability (Rawat, R.S., 1989).

Another study to determine the relationship of power, agility, shoulder flexibility, arm length and leg length to volleyball playing ability; study concluded that the variables of agility and shoulder flexibility show insignificant relationship in prediction of playing ability of male volleyball players. (Joseph, V.K., 1983)

Another study found the correlation between agility and lower limb power. Agility is particularly relevant to volleyball players since the sport requires intense movements involving acceleration and deceleration, linear and lateral displacements, and changes of direction. (Gustavo Z Schaun, 2013).

4. Summary & Conclusion:

Nowadays performance in volleyball game needs perfection in all motor qualities, is not enough to master the main volleyball skills like passing and spiking, but to have speed, coordination, balance, strength and good agility skill too. In our study we wanted to see that the components and fitness test have been used for the selection trial are statistically correlated with each other or not. Hence, it has been statistically ($r=0.60$, $P<0.001$) proved the significant correlation between the selected Game specific fitness test and overall playing ability among volleyball players.

4. Acknowledgements:

This paper is made under the aegis of the Department of Physical Education, Gargi College, Delhi University. I also acknowledge Delhi University Sports Council and all the candidates who have applied in Delhi University under sports quota admission and appeared for Playing ability and fitness test at Gargi College on 27th June 2017.

5. References:

- [1]. Aagaard H., S. M. (1997). An epidemiological analysis of the injury pattern in indoor and in beach volleyball. *International Journal of Sports Medicine*, 18, 217-221.
- [2]. E-News, H. T. (2017, June 22).
- [3]. Eugenia Gortsila et al. (2013). Effect of Training Surface on Agility and Passing Skills of Prepubescent Female Volleyball Players. *Sports Medicine and Doping Studies*.
- [4]. Gamble P. (2013). Strength and Conditioning for Team Sports: Sport-Specific Physical Preparation for High Performance. p. 291.
- [5]. Gustavo Z Schaun, Y. S. (2013). Correlation between Agility, Lower Limb Power and Performance in a Sport-Specific Test in Female Volleyball Players. *International Journal of Sports Science*, 3(5), 141-146.
- [6]. Gustavo Z Schaun, Yuri S Ribeiro, Marcelo S Vaz*,Fabrício B Del Vecchio,. (2013). Correlation between Agility, Lower Limb Power and Performance in a Sport-Specific Test in Female Volleyball Players. *International Journal of Sports Science*, 3(5), 141-146.
- [7]. Johnson, B.L. and Nelson, J. (1982). *Practical Measurements for Evaluation in Physical Education*. Delhi: Surjeet Publications.
- [8]. Joseph, V.K. (1983). Relationship of Power Agility, Flexibility and Measurements of Selected Body Segments to Volleyball Playing Ability. Unpublished Master Degree Thesis, Jiwaji University.
- [9]. Rawat, R.S. (1989). Physical, Physiological and Motor Skill Determinants of Male State-level Volleyball Players of Himachal Schools. Jwaji University, Gwalior: Unpublished Ph.D. Thesis.
- [10]. Siedentop, D. (2010). *Introduction to Physical Education, Fitness & Sport* (Seventh ed.). NewYork: McGraw-Hill.
- [11]. Website, C. (2017, September Saturday). College Website.

Corresponding Author:

Atul Sharma

TGT Physical Education, Kendriya Vidyalaya,
Bhurkunda, Jharkhand, India.