

# Efficacy of Using Footwork Drills on Footwork Improvement among Badminton Players-Quasi Experimental Study

Rohini .G<sup>1</sup>, Prakash Jayabalan<sup>2</sup>, Sivakumar S<sup>3</sup>

<sup>1</sup>Final Year Student, KMCH College of Physiotherapy, Coimbatore, Tamil Nadu, India  
Corresponding Author Email: [rohunivi013\[at\]gmail.com](mailto:rohunivi013[at]gmail.com)

<sup>2</sup>Professor, KMCH College of Physiotherapy, Coimbatore, Tamil Nadu, India  
Ph: 9944087135. Email: [Prakashjayabalan4\[at\]gmail.com](mailto:Prakashjayabalan4[at]gmail.com)

<sup>3</sup>Professor, KMCH College of Physiotherapy, Coimbatore, Tamil Nadu, India  
Ph: 9842274794, Email: [sss1612kmch\[at\]gmail.com](mailto:sss1612kmch[at]gmail.com)

**Abstract:** Background/Purpose: Badminton is one of the most popular sports in the world. The footwork drills exercises help to increase the footwork improvement, Agility and speed balance, thereby promoting badminton performance. So, to have the good footwork training is necessary. Objective: To study the effects of footwork drills on footwork improvement in badminton players by ladder drill exercises using the 10m Agility shuttle run test and 50mts run test. Study Design: Quasi experimental study. Materials and Methodology: 30 subjects were selected between the age group of 15 – 25 years, they were allocated in a group. These subjects were trained with ladder drill exercise for footwork improvement program. The study was conducted for a period of 6 weeks. The footwork improvement of the players was measured using 10 m Agility shuttle run test and 50mts run test before and after the exercise intervention. Statistical Analysis: The pre-test and post-test values are analyzed using Paired “t” test. Result: There was a significant improvement in footwork improvement in players. On comparing the post-test values a greater improvement in footwork activities by ladder drill exercises. Conclusion: Hence the study was concluded that the ladder drill exercises was effective in improving the agility & speed on the badminton players.

**Keywords:** Badminton, Footwork improvement, Agility, Speed, Ladder drill exercises

## 1. Introduction

Badminton is considered as one of the most popular racket sports over the world, in which two or four opposing players strikes a shuttle over a dividing net between to score a point. In Badminton the player should have a good footwork to reach the shuttle quickly to easily score a point.

For athlete, with a fast moving and a good footwork can take advantage of the opponent and also conserve energy during the game. The physical characteristics and ability of an athlete are determined at conception intense training will induce moderate increasing performance and is necessary for the achievement.

The fast-moving ability is also a comprehensive physical fitness of a badminton player.

Badminton is the game which requires lot of movements on the court. The players should have agility to move forward, backward and sideward within the court to play different shorts with a high speed.

Ladder drills is a form of jumping exercise by a foot or two by jumping on a ladder-shaped rope that is placed on the floor or on the ground. Agility is the ability to move the directional and change the position of the body quickly, effectively, and consciously, and requires the integrity of motion skills by using a combination of balance, coordination, speed, reflex, strength, endurance, and stamina.

In the development of Badminton, the rapid moving ability and the reasonable utilization of the footwork in the Badminton competition have been gradually improved, and the research results of the relevant part have also been formed in the movement speed of the Badminton footwork. Badminton footwork is an important part of the Badminton technology, learning and mastering the quick and accurate method is to lay the important link of Badminton.

Foot drills plays an important part of footwork in Badminton. One way to respond to the shuttle cock quickly is to have good footwork. A good, agile, fast footwork movement can help the athlete to restore the opponent's shuttle cock with good techniques and can even give the player the opportunity to place the shuttle cock in a place.

That is difficult for the opponent to reach. Therefore, a good footwork is absolutely needed for the Badminton player. To improve footwork, the footwork drill exercise plays a major role. It improves the agility, speed and timing of the player. As the skills of the badminton footwork is play as the major role. The soul of the badminton is footwork.

## 2. Review of Literature

N Chandra Kumar, et al.(2015) -conducted a “Effects of ladder drill and SAQ (Speed , agility and quickness) training on speed and agility among sports club badminton players”. All players were given ladder drill and SAQ (speed, agility and quickness) for 8 weeks (3 days per week in alternative

Volume 11 Issue 3, March 2022

[www.ijsr.net](http://www.ijsr.net)

Licensed Under Creative Commons Attribution CC BY

days). The study conducted that foot drills and SAQ needed for effective footwork movement in badminton players. In this study, based on the results it was concluded that the ladder drill and SAQ training were significantly improved the speed and agility among sports clubs' badminton players.

**Rangga Ardian Pradana , et al(2020)** – conducted a “Effect of ladder drill training towards agility level among basketball players. The samples were 25 male students. This study conducted, post-test 1 after 4 times of ladder drill training, post-test 2 after 8 times of ladder drill training, post-test 3 after 12 times of ladder drill training and post-test 4 after 16 times of ladder drill training. To determine the influence of ladder drill training toward agility level among basketball players. The result found there was influence of ladder drill training toward agility level with significant value of  $p=0.001$ .

**Pratama, N.E., Mintarto, E., & Kusnanik, N.W. (2018).** “The influence of ladder drills and jump rope exercise towards speed, agility, and power of limb muscles. Journal of sports and physical education. Based on this study analysis, it can be concluded that there is a significant influence of ladder drills and jump rope exercises towards increasing speed, agility, and limb muscle power. Ladder drills are more effective than rope jump exercises and control groups in increasing speed and agility. While rope jump exercises are more effective than ladder drills and control groups in increasing limb muscle power.

**Warren B. Young, Brian Dawson, Greg j. Henry. (2015).** “Agility and change of direction Speed are independent skills: Implications for training for agility in Invasion Sports”. This study concluded that the reactive element should be included in agility training, testing and research.

**Aim and Objectives**

**Aim**

The aim of the study is to find out the effects of footwork drills on footwork improvement in badminton players.

**Objectives of the Study**

- To find out the effects of footwork drills on footwork improvement by ladder drill exercises using the 10m Agility shuttle run test in Badminton players.
- To find out the effects of footwork drills on footwork improvement by ladder drill exercises using the 50mts run test in Badminton players.

**3. Methodology**

The selected subjects were explained about the study procedure and after taking the informed consent from the players, subjects are enrolled for inclusion according to specified criteria are included in the study. The selected subjects will be assigned into one group. This group with 30 badminton players will be trained with ladder drill exercises for footwork improvement program for 6 weeks (4 times/week on alternative days). The training was imparted for a period of 60 minutes which includes 5 minutes warm up and 5 minutes relaxation period. The measurement tools

used to measure the footwork are 10m Agility shuttle run test and 50mts run test.

**Criteria for Selection**

Badminton players fulfilling the following inclusion and exclusion criteria will be selected for the study.

Criteria For Selection	
Inclusion Criteria	Exclusion Criteria
<ul style="list-style-type: none"> <li>• Professional Badminton players only.</li> <li>• An experience of minimum 5 years of badminton training.</li> <li>• Age- 15 to 25.</li> <li>• Sex- male and female</li> </ul>	<ul style="list-style-type: none"> <li>• History of any foot surgery.</li> <li>• Lower limb Fractures in past and present history.</li> <li>• Unstable cardiovascular diseases.</li> <li>• Irregular training.</li> <li>• Any recent lower limb injury during past 6 months</li> </ul>

**Procedure:** The 30 subjects are selected based on the inclusion and exclusion criteria. The Pre - test measurement of Footwork was obtained from using 10m Agility shuttle run test and 50mts run test.

**Intervention:**

The players receive booklet with ladder drill exercises program chart. It includes, total 6 weeks of training. 6 weeks (4 times/ week on alternative days).

- Explosive pushes – 1× 3 reps
- In and Out- 1× 3 reps
- In, in, Out, out- 1× 3 rep
- Side pushes- 1× 3 reps
- In, in, Out, out -Sideways: 1× 3 reps
- Step running- 1×3 reps
- Hip rotation- 1×3 reps
- One leg jump- 1× 3 reps
- Two foot forward- 1× 3 reps
- Two foot sideways- 1×3 reps
- Icky shuffle- 1× 3 reps
- Backward icky shuffle- 1× 3 reps
- Foot exchange- 1×3 reps
- Two footed hop- 1× 3 reps

**Picture Presentation**



**Figure 1: Side Pushes**



Figure 2: In In, Out Out –Sideways



Figure 3: Hip Rotation



Figure 4: Backward Icky Shuffle

#### 4. Result

The Statistical Value of Footwork Improvement of Badminton Players:

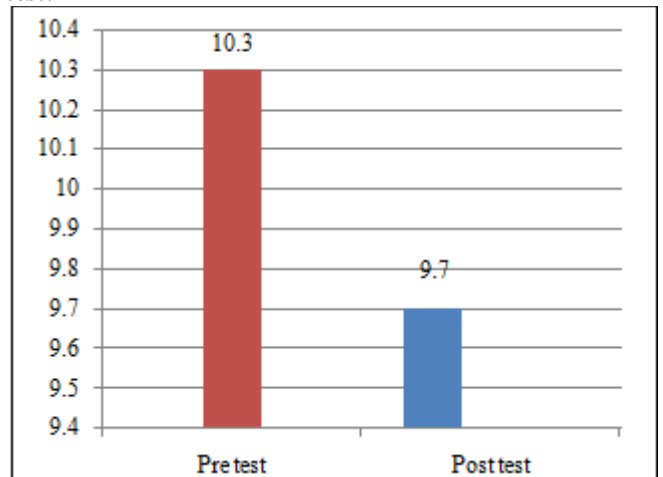
Measurement tool	Mean value		Calculated 't' value	Table 't' value	P value and level of significance
	Pre test	Post test			
10m Agility Shuttle run test	10.3	9.7	20.80	2.04	P <0.05 % signification
50mts run test	6.5	4.8	35.11	2.04	P <0.05 % signification

#### Paired 't' Test:

##### Footwork Improvement by Ladder Drill Exercises using the 10m Agility Shuttle Run Test:

The pretest value 309.37 and the post-test value 292.13 of footwork improvement by ladder drill exercises using the 10m shuttle run test was analyzed using paired 't' test. For 29 degrees of freedom (n=30) and at 5% level of significance, the table t value is 2.04 a calculated t value is 20.80. Calculated t value is greater than the table t value, null hypothesis is rejected. Hence there is significant effect of footwork improvement in badminton players.

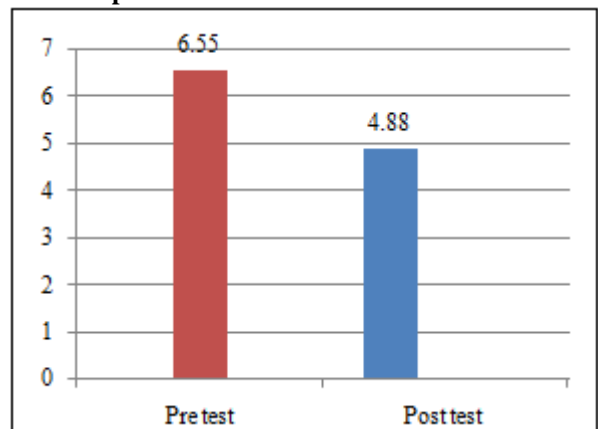
##### Pre-test and post-test values of 10m Agility shuttle run test:



##### Footwork Improvement by Ladder Drill Exercises using the 50mts Run Test:

The pretest value 195.81 and the post-test value 145.25 of footwork improvement by ladder drill exercises using the 50mts run test was analyzed using paired 't' test. For 29 degrees of freedom (n=30) and at 5% level of significance, the table t value is 2.04 a calculated t value is 35.11. Calculated t value is greater than the table t value, null hypothesis is rejected. Hence there is significant effect of footwork improvement in badminton players.

##### Pretest and post-test values of 50mts run test:



#### 5. Discussion

Ladder drill is an exercise to increase the agility level which this training increased power, flexibility, speed and dynamic balance. These components had influenced agility level in

the respondents. The ladder drill training such as running, jumping with fast movement had developed speed and agility level. Ladder drill training helped in direction changing from one position to different position at high speed with good motion coordination which will increase agility level. During exercise, the muscle will become more elastic and joint will be improved causing the legs to swing in the steps. The muscle elasticity also increased muscle extension, stronger and faster muscles can be contracted so that the footsteps can be done quickly.<sup>(2)</sup>

The muscle fibre increased the muscle contraction speed leads increment of agility level. In addition muscle strength, joint flexibility speed, muscle and joint elasticity and dynamic balance had experienced physiologically, improvement changes from this training. Furthermore, there also an adaptation of innervations which is determined by the ability level ability to stimulate central nervous system to the muscles and muscles speed in receiving stimulation in form of motion.<sup>(2)</sup>

The main muscle components involved in the ladder drills are Sartorius muscle, Gracilis muscle, Semitendinosus muscle, Gluteus Maximum muscle, Vastus Lateralis - Medialis - intermedius muscles, Gastrocnemius muscles, Longus peroneus muscles, Hallucis longus muscle extensor, and Hallucis longus muscle flexor. Ladder drill exercises helps us to improve movement aspects, increase balance, muscle power coordination and reaction time between all of body parts and to change the nervous system and related muscle groups. Ladder drills exercise has a significant effect on speed and agility because the leg muscle constantly performs contraction continuously during the exercise.<sup>(3)</sup>

In the recent times ladder drill and SAQ training is offered as a better method for developing speed and agility.<sup>(4)</sup>

In the present study the footwork drills have improved the agility and reaction time over respectively by finding significant differences in comparison from baseline to post test. Based on the result of the study it was concluded that the 6 weeks of selected footwork drills have been significantly improved agility and Reaction time among school level badminton players from the finding it is postulated that selected footwork drills are suitable mode to bring out desirable change over agility and Reaction time among badminton players.<sup>(7)</sup>

This study aims to find out whether footwork exercises are effective in increasing agility in badminton. The results showed that footwork exercises were effective in increasing agility in badminton. This is supported by research conducted by Chao Chen, with the title: 'Footwork Teaching of college Badminton Elective Course'.<sup>(12)(11)</sup>

## 6. Conclusion

This study was conducted to analyze the effects of footwork improvement in badminton players. Samples of 30 Badminton players were selected. They were assigned into one group. They were assigned to Ladder drill exercises. The study was conducted for a period of 6 weeks. The measurement tool was 10m Agility Shuttle run test and

50mts run test. The data was collected and analyzed using the Paired 't' test. The result showed a significant improvement in footwork improvement of badminton players. With this study, It was concluded that the greater footwork improvement in badminton players whom receives Ladder drill exercises

## 7. Limitation and Suggestion

### Limitations:

- Only done on badminton players.
- Only done to age group between 15 to 25 years.
- Done on small population.
- The population of this study was consisted to young athlete, limiting the study without older population.

### Suggestion:

- Large sample size is recommended.
- The study can be done on different sports players.
- In further studies sample can be selected from other age group.
- In further studies the footwork improvement along with power of limb muscles can be measured.

Funding: No funding has been received for this study

Conflict of Interest: Authors declare no conflict of interest

## References

- [1] Chandra Kumar, N., & Ramesh, C. (2015). Effects of ladder drills and SAQ training on speed and agility among sports club badminton players. *International Journal of Applied Research*, 1(12), 527-529.
- [2] Rangga Ardian Pradana., et al.,(2020). *Journal of Physics: Conference series- 1529(2020)032038*. Effects of ladder drill training toward agility level among basketball players.
- [3] Pratama, N.E., Mintarto, E., & Kusnanik, N.W.(2018). The influence of ladder drills and jumprope exercise towards speed, agility, and power of limb muscles, *Journal of sports and physical Education*, 5(1), 22-29.
- [4] Kapoh, N.M.A.A.(2016). Using the agility ladder in improving the performance level of some composite offensive skills in Basketball among the students at the Faculty of Physical Education (Thesis). University of sadat city, Egypt.
- [5] Sunil Kumar 2013 *Badminton Skill and rules*, khel sahitya Kendra. P: 1, 2.
- [6] K.Azmi and N.W., Kusnanik 2018. Effect of exercise program speed, Agility, and Quickness (SAQ) in improving speed, agility and Acceleration *Journal of Physical Conference series* 17890.
- [7] J.Nirendan and Dr.K.Murugavel., Department of Physical Education of selected Footwork drills on motor Fitness variables of Badminton players., ISSN-0976-3678, 2019.
- [8] Changhao JIANG, University Badminton Footwork Teaching in specialized work, *Journal of Ningbo University(J)*, 2008.

- [9] Jingkang SHI, Introduction to Badminton Footwork training and its Importance, Sports Research and Education (J), 2013-1.
- [10] Suping WANG, Min PENG, The Focus and Principles of the Badminton Footwork Teaching, Liaoning sport science and Technology.
- [11] Chen, chao, 2014, Footwork Teaching of college Badminton Elective course, 3<sup>rd</sup> International conference on science and social research.
- [12] Ari subarkah., et.al., 2019 , Universitas Negeri Jakarta, Indonesia., The Effectiveness of Footwork Exercise to improve Agility in Badminton., ISBN 978-623-7482-42-0.
- [13] Hu Zhong, Jiangxi Normal University, Nanchang 330022, china., Study the Influence of Fast moving Ability and Footwork on Badminton, DOI: 10.25236/FSR.2020.020208.
- [14] Abdul Jamil, S, Aziz, N. & HOOI, L.B. (2015) : “Effects of ladder drills training on agility performance, International journal of health, Physical education and computer science in sports , Vol 17, No.1.pp17-25 , Sports centre, University of Malaya, Malaysia.
- [15] Warren B. Young, Brain Dawson, Greg J. Henry. (2015), “Agility and change of direction Speed are independent skills: Implications for training for Agility in Invasion Sports.