Kinestetik : Jurnal Ilmiah Pendidikan Jasmani 7 (1) (2023)
Kinestetik : Jurnal Ilmiah Pendidikan Jasmani
https://ejournal.unib.ac.id/index.php/kinestetik/index
DOI : 10.33369/jk.v7i1.25772

Effect of Speed Agility Training and Quickness on Speed Enhancement and Agility: an Experimental Study

Furqon Fauzi Wijaya[1]*, Pungki Indarto[2]
[1,2] Sports Education, Teacher Training and Education Faculty, Universitas Muhammadiyah Surakarta, Surakarta, Indonesia

Article Info

Article History :

Received : December 2022
Revised : March 2023
Accepted : March 2023

Keywords:

Agility,
Quickness ,
Speed,

Abstract

This research was conducted at Senior High School 1 Wonogiri. The sample taken was the women's futsal extracurricular group of Senior High School 1 Wonogiri which totaled 17 students. The data collection technique used is the use of tests and measurements. As for the measurement test procedure, researchers use Speed and agility measurement tests. The test instruments used are the 30-meter running test and the shuttle run. Hasil of this study obtained the value of sig. (The 2-tailed) the treatment group was 0.000. The value of the sig. The (2-tailed) treatment group < 0.05 showed that there was a significant difference between the initial test and the final test. So it can be concluded that speed agility and quickness training affects the level of speed and agility of the women's futsal extracurricular group of Senior High School 1 Wonogiri.

*Corresponding email: a810170058@student.ums.ac.id
ISSN 2685-6514 (Online)
ISSN 2477-331X (Print)

INTRODUCTION

Sports pedagogy is a sports discipline that has the potential to integrate other subdisciplines of sports science to underlie all practices in the field of sports that contain the purpose and objectives of educating. In today's era, sports include activities that are good to fill free time, because exercising can increase discipline and can narrow the space for the younger generation to do negative activities. To create a younger generation who are more qualified and can compete in the world of sports(Ndaru Kukuh Masgumelar and Pinton Setya Mustafa 2021; Sunardi and Kriswanto 2020).

Futsal is currently a very popular sports game so it is often played by several groups of people, ranging from boys, girls, teenage boys, teenage girls, and even adults who also play futsal ball games. Futsal games are not only played in closed rooms, many modified futsal game developments are played in open spaces and even in an area played using a dirt court. The origin of the sport of Futsal appeared around 1930 in Montevideo, Uruguay, and was introduced by a famous football coach of the time, namely Juan Carlos Ceriani. Actually, at that time Ceriani did not deliberately create this Futsal sport. Ceriani was inspired when his football team wanted to hold a practice but the weather did not support holding a practice (rain) (Gumantan and Fahrizqi 2020; Prasetyo Widiyono and Mudiono 2021; Swastika, Herningtyas and Khasanah, Nidaul 2017; Taufik 2019; et al. 2022).

Currently, the futsal game is developing very rapidly, it is known that with the development of futsal academies in the area there are already very many futsal events between academics, students, and even between futsal clubs that have been carried out almost every week.

In playing futsal sports, players are required to have good fitness, because futsal sports games are standardly secured with a time of 2 x 20 minutes. To get good physical fitness, systematic preparation, execution, and training process are needed so that good conditions are formed and can support having speed and agility so that they can become reliable and outstanding players. Coaching futsal players must be carried out systematically and by the periodization that has been made by the coach so that it can be organized and directed(Festiawan 2020; Sakti and Fahrudin 2021; Wijaya Kusuma 2021). To support agility and strength in futsal sports, an exercise program is needed, including Speed Agility, And Quickness (SAQ)(Acar and Eler 2019; Akhmad, Nugraha, and Sembiring 2021; Azmi and Kusnanik 2018; Mohammad Hasan Basri and Noer Wahid Riqzal Firdaus 2020). Speed or also called maximum speed is an important capital for a player or athlete to perform basic dribbling techniques (Subekti et al. 2021). posits that speed is "The body's ability to perform movements in the shortest possible time". Speed does not mean moving the body as quickly as possible, but it can also be limited to moving the limbs in the shortest time(Fachrezzy et al. 2020; Hermawan et al. 2020; Jariono et al. 2021; Nugroho et al. 2021). Agility plays a very important role in dribbling by outwitting opponents. at the moment when the player is doing accelerated dribbling. According to Harsono, agility (Bompa and Buzzichelli 2018) is "the ability to change the direction and position of the body quickly and precisely when it is moving without losing balance and awareness of its body position". Agility is very close to the basic

technique of dribbling where the two are continuous with each other. By doing a form of exercise regarding agility and Quickness with several repetitions or reps methods, a player or athlete will be able to perform dribbling techniques well. Quickness is the ability to carry out patterned motion based on the action of a reaction as quickly as possible. The speed of motion of action (without stimulus), or reaction-action, optic-acoustic-tactile reaction. Such as: kicking, hitting, sitting, standing, and movements with various positions (movements either beginning with a stimulus or without a stimulus). It can be done with a simple reaction or an alternative reaction. Based on the above presentation, to master the basic dribbling techniques, each player is required to have physical conditions, including speed, agility, and reaction action (Quickness). Therefore, to improve the ability to move quickly, it is necessary to have forms of exercise that suit your needs.

In this study, Speed, agility, and Quickness training programs were applied using ladder drills, Run Through with Hurdle and Wall Drills for speed training, and agility training forms, namely with zigzag running exercises that aim to increase agility, and Quickness training forms that are, by running exercises and then jumping on a box prepared in the form of a relay aimed at increasing the speed of motion in reaction. Because this method is considered very suitable given to training the speed, agility, and reaction speed of futsal players. This is by the opinion that the training methods of (Kumaran, Valli Murugan, and Kodeeswaran 2022) Speed, agility, and Quickness are aimed at developing motor skills and control of body movements through the development of a neuromuscular system. This aims to improve the ability of athletes to perform the multidirectional movement with explosive power by reprogramming the neuromuscular system so that it can work more efficiently. Zalfendi 2010 has two "ball less techniques" such as running, jumping, tackling, and body chart. While the technique with the ball is shooting, passing, controlling, dribbling, heading"(Hamid et al. 2019). In the game of futsal, there are basic techniques that must be mastered to support a good game. One of the techniques that must be mastered is dribbling, Dribbling is carrying the ball with the foot to pass the opponent, looking for opportunities to give passes to comrades, and holding the ball to remain in possession. One of the basic techniques of match football is dribbling ability, a physical condition that plays an important role in supporting the success of dribbling ability(Yuniarto, Supriyadi, and Sudjana 2018).

Explaining that dribbling is useful for: "1) Moving the game area, 2) passing the opponent, 3) slowing down the tempo of the game, and 4) allowing the opponent to approach the ball until the attacking area is open". Thus it can be said that dribbling not only takes the ball down the ground and straight ahead but rather faces opponents who are quite close and tight. This requires a player to have good dribbling ability. To achieve the purpose of dribbling, several factors influence, including the physical condition of the technique, facilities and infrastructure, and coaches. This means that many factors can affect a person's ability to dribble. From the above opinion, it can be concluded that in Zalfend's (2010) dribbling there is an influence of speed and agility.

METHODS

In this study, researchers used experimental research methods. The data collection technique used using tests and measurements is by conducting tests on samples in the form of initial tests (pre-tests) before giving treatment (treatment) and measuring the final test (post-test) or measurements after giving treatment (treatment) and after that, the results of the pre-test and post-test are processed using the T-Test formula

Participants

In this study, the participants were all female futsal extracurricular students at Senior High School 1 Wonogiri, totaling 17 people.

Sampling Procedures

The sample in this study was all female futsal extracurricular students at Senior High School 1 Wonogiri which totaled 17 people. In this study, the total sampling technique was taken using all members of the population as a sample, thus the sample was taken 17 samples.

Materials and Apparatus

In this study, the measurement test used was with a 30 M running test instrument using tools and materials including; Meter, stopwatch, cone, and flag. And twice Agility with Shuttle run with bibs obstacles forming the number 8.

Procedures

The procedures used in this study are as follows: First, the researcher conducts a measurement test involving speed and agility, the researcher classifies and categorizes the data, and the test is carried out on the page of Senior High School 1 Wonogiri.

1. Speed Test Research Instrument with 30-Meter Run

   Test Procedure:
   a. Testi standing at the starting line
   b. With aba-aba " ready" ready to be outlined start
   c. After on cue "ya," ran as quickly as possible covering a distance of 30 meters to the finish line
   d. Do the test 2 times, after one time the runner is elbowing
   e. Testi fails when crossing other tracks
2. Agility Test with Shuttle run.
   a. The first ledge stands behind the starting line upright.
   b. Then with the starting position, your gaze is focused forward.
   c. The right leg is placed forward with a slight bend. Then use the front legs to support the weight.
   d. Prepare the hind legs in the back area to carry out repulsion when going for a run.
   e. Put both hands next to the body and bend it slightly.
   f. The body is rejected immediately towards the front when a shot is sounded or aba aba "Yes", where the repulsion uses the hind legs.
   g. Focus is maintained while running towards the destination point as quickly as possible.
   h. The body is leaned forward so that the run can be accelerated.
   i. The body was turned over immediately when the foot stepped on the destination point line and ran back to the direction where it was just now.
   j. After returning to the original point, the calculation of the value of new participants can be done
   k. After getting the results, researchers can process the data and draw conclusions and suggestions.

Design or Data Analysis

1. Descriptive analysis

Descriptive analysis in this study describes the results of the pre-test and post-test. even though the research design is a statistical analysis using One group pre-test–post-test design. In this design, there are no control groups, and the subjects are not randomly placed. The advantage of this design is that it is carried out pretest and posttest so that it can be known with certainty the difference in results due to the treatment given to the Speed, agility, and Quickness groups. This research was conducted on female students who were members of the Women's Futsal Extracurricular at Senior High School 1 Wonogiri. In this study, research results will be discussed which include data description, data analysis, analysis prerequisite testing, and hypothesis testing based on data results and underperformance.

a. Prerequisite test

To prove the hypothesis of this study using a t-test, an analysis of the research data was first carried out using a prerequisite test. The analysis requirements that must be met in the t-test are the normality test and the homogeneity test.

b. Normality

The normality test is used to determine the distribution of data obtained from the results of normally distributed research or not.

c. Homogeneity

The homogeneity test is used to determine the similarity of variants of physical fitness data before and after being given the test treatment.

2. Test the hypothesis

The hypothesis test used in this study used a statistical test, namely the T-test (t-test) with a significance level of 5%. By looking for the average value of the test results and measurements that have been carried out both the initial test (pretest) and the final test (posttest). Previously, data transformation was first carried out which was converted into values (scores) using tabulations, and then statistical calculations were carried out.

RESULT

1. Data Description

This research took place from February 24 to April 29, 2021, and was held at Senior High School 1 Wonogiri. This type of research is an experimental study with pretest and posttest methods so that it can be known with certainty the difference in results given the Speed, agility, and Quickness of treatment). There are several Research Instruments for Speed Tests with 30-Meter Runs and Agility Tests with Shuttle runs.

2. Data analysis results

a. Prerequisite Test

The data analysis used in this study was using a t-test. Before analyzing the research data, a prerequisite test is first carried out. The data analysis requirements that must be met before the t-test include normality tests and homogeneity tests.

b. Normality Test

The data normality test is a prerequisite test used to determine whether the distribution of the analyzed data is normally distributed or not. The data normality test used in this study was using the formula One-Sample Kolmogorov-Smirnov Test.

Based on normality statistical data, it can be seen that the significance value of the variable is 0.200; 0,105; 0,194; and 0.200. The value is greater than α = 0.05. So it can be concluded that the data from the speed and agility test conducted at Senior High School 1 Wonogiri are normally distributed.

c. Homogeneity Test

The homogeneity test is a prerequisite test used to test the similarity of variance of speed and agility data before and after treatment mean. Based on the results of homogeneity statistical data, it can be seen that the significance value based on the average of the Run30M test is 0.709; while from the Shuttle run test it is 0.932. The value is greater than α = 0.05. So it can be concluded that the variants of the 30 m run test and the shuttle run test are the same or homogeneous.

b. Hypothesis Testing

The hypothesis in this study is the effect of speed agility and quickness on increasing agility and speed. The data analysis used in testing the hypothesis of this study is using the Paired Sample T-Test test formula. The hypothesis is accepted when the probability value or sig. (2-tailed) < 0.05. The results of the t-test data analysis in this study are as follows:

Based on the results of the t-test statistical data, it can be known that the sig value. (2-tailed) of the 30 m run test i.e. 0.000 while the sig value. (2-tailed) of the shuttle run test which is 0. 001. The value of the sig. (2-tailed) a 30 m < 0.05 run test means that there is a significant difference between Pretest and Posttest, and a sig value. 2-tailed) of the shuttle run test < 0.05 means that there is a significant difference between Pretest and Posttest. So it can be concluded that there is an influence of speed agility and quickness on the increase in agility and speed, so the hypothesis of this study is accepted.

DISCUSSION

The results of the research on the effect of speed agility and quickness on increasing agility and speed are briefly as follows:

1. The 30 m run test experienced an increase in the number of scores from 337.02 to 326.33 and an average of 19.8 to 19.1. This means that there is a decrease in the total value of 10.69 and an average of 0.7.
2. The shuttle run test experienced an increase in the number of scores from 335.70 to 329.09 and an average of 19.7 to 19.3. This means that there is a decrease in the total value of 6.61 and an average of 0.4.

This study aims to determine the speed, agility and quickness of increasing the agility and speed of futsal extracurricular students at N I Wonogiri High School. The design of this study used experiments with the results of Posttest scores and Pretest scores of students who were given speed agility and quickness exercises.

SAQ (Speed, Agility, Quickness) training can significantly increase speed and agility in the 2018 FIM Squad IKIP Mataram futsal players, where the hypothesis test results are accepted as correct. This means that there is an Effect of SAQ Training (Speed, Agility, Quickness) on Increasing Speed and Agility in FIM Squad IKIP Mataram futsal players in 2018 speed agility and quickness are influential as a support for playing futsal, to get a good game, speed and agility skills are needed. An important factor in addition to the tactics and basic skills of a futsal player is the mentality of a player in the futsal game. Therefore, during the training process,

each player must pay attention to these factors using the SAQ variable (Speed, Agility, Quickness) where the study focuses on the development of the SAQ Model, while this study wants to test the correlation between SAQ and futsal player performance, but there are also similarities where SAQ itself is one of the factors in player performance and has an urgency to the player's endurance and agility.

The results of the data analysis can be seen that before being given treatment for speed agility and quickness the extracurricular students of futsal women of Senior High School 1 Wonogiri's level of speed and agility was mostly in the category of lacking. This can be interpreted as students still lacking to increase their speed and agility. As a result, students are not able to run a practice well, so the results of the match are not optimal. Speed agility and quickness training is a form of exercise that can have an effect, benefit, and change in increasing speed and agility. Speed agility and quickness exercises were created to positively influence whoever does. Especially for athletes so that they can add strength and agility when running a game.

The results of the data analysis obtained showed that the level of speed and agility given by treatment speed agility and quickness increased. It can be said that this speed agility and quickness exercise affects efforts to increase speed and agility. This means that the application of exercises by carrying out speed agility and quickness regularly can increase speed and agility. This is supported by the results of the hypothesis which shows that the researcher's hypothesis is accepted. Based on the statistics of the hypothesis test it is explained that the value of sig. (2-tailed) of the 30 Meters run test is 0.000 while the sig value is. (2-tailed) of the shuttle run test which is 0.001. The value of the sig. (2-tailed) test run 30 m < 0.05 means that there is a significant difference between Pretest and Posttest, and sig values. (2-tailed) of the shuttle run test < 0.05 means that there is also a significant difference between Pretest and Posttest. This can be interpreted to mean that there is an influence of speed agility and quickness training on the level of speed and agility of futsal extracurricular students at N I Wonogiri High School. The results of this study prove that speed agility and quickness exercises can increase students' speed and agility. These results explain the importance of accustoming students to carry out speed agility and quickness exercises regularly to maintain student speed and agility. The benefit of speed and agility for students is that it can support the game so that students can optimize the results of their matches.

CONCLUSION

Based on the results of research that has been carried out and strengthened by the results of inferential statistical analysis, it can be concluded that speed agility and quickness exercises can affect the level of speed and agility of students of Senior High School 1 Wonogiri. It can be seen from the number of scores and the average of the 30 M run test and the shuttle run test has increased. And reinforced by a hypothesis test that explains The sig value. (2-tailed) < 0.05 means that there is a significant difference between Pretest and Posttest.

ACKNOWLEDGEMENT

We would like to express our deepest gratitude to the Faculty of Teacher Training and Education, Sports Education Study Program Universitas

Muhammadiyah Surakarta for providing full support to researchers and also to Senior High School 1 Wonogiri for allowing research, especially on the Women's Futsal Extracurricular.

REFERENCES

Acar, Hakan, and Nebahat Eler. 2019. "The Effect of Balance Exercises on Speed and Agility in Physical Education Lessons." Universal Journal of Educational Research 7(1):74–79. doi: 10.13189/ujer.2019.070110.

Akhmad, Imran, Tarsyad Nugraha, and Petrus Sembiring. 2021. "Speed, Agility, and Quickness (SAQ) Training of the Circuit System: How Does It Affect Kick Speed and Agility of Junior Taekwondo Athletes?" Journal Sport Area 6(2):175–82. doi: 10.25299/sportarea.2021.vol6(2).6433.

Azmi, K., and N. W. Kusnanik. 2018. "Effect of Exercise Program Speed, Agility, and Quickness (SAQ) in Improving Speed, Agility, and Acceleration." Journal of Physics: Conference Series 947(1). doi: 10.1088/1742-6596/947/1/012043.

Bompa, Tudor O., and Carlo Buzzichelli. 2018. Periodization-6th Edition: Theory and Methodology of Training.

Fachrezzy, Fahmy, Gatot Jariono, Uzizatun Maslikah, and Haris Nugroho. 2020. "Functional Exercise Model for Weight Loss in Sports Science Faculty Students." 159–65.

Festiawan, Rifqi. 2020. "Pendekatan Teknik Dan Taktik: Pengaruhnya Terhadap Keterampilan Bermain Futsal." Gelanggang Olahraga: Jurnal Pendidikan Jasmani Dan Olahraga (JPJO) 3(2):143–55. doi: 10.31539/jpjo.v3i2.1080.

Gumantan, Aditya, and Eko Bagus Fahrizqi. 2020. "Pengaruh Latihan Fartlek Dan Cross Country Terhadap Vo2max Atlet Futsal Universitas Teknokrat Indonesia." SPORT-Mu: Jurnal Pendidikan Olahraga 1(01):1–9. doi: 10.32528/sport-mu.v1i01.3059.

Hamid, Abd, Said Abdillah, Jalan Brigjen, Hj Hasan, Kec Banjarmasin Utara, Kota Banjarmasin, Gladi Jurnal, and Ilmu Keolahragaan. 2019. "Pengaruh Komponen Fisik Dominan Olahraga Futsal Permainan Futsal." 10(01):28–38.

Hermawan, Iwan, Uzizatun Maslikah, Mustafa Masyhur, and Gatot Jariono. 2020. "Pelatihan Kondisi Fisik Pelatih Cabang Olahraga Kota Depok Jawa Barat Dalam Menghadapi Persiapan PORPROV 2022." Prosiding Seminar Nasional Pengabdian Kepada Masyarakat 2020 (SNPPM-2020) 1(1):371–80.

Jariono, Gatot, Haris Nugroho, Djoko Nugroho, Sae Dikdaya Nyatara, Tunjung Marganingrum, and Dewi Setiawati. 2021. "Determining Factors Of Jump Service Volleyball In The Student Activity Unit Of Volleyball." Kinestetik : Jurnal Ilmiah Pendidikan Jasmani 5(4):799–808. doi: 10.33369/jk.v5i4.19771.

Kumaran, S. Senthil, V. Vallimurugan, and N. Kodeeswaran. 2022. "International Journal of Research Publication and Reviews Abdominal Strength as a Result of Core Exercise." 3(2):109–11.

Mohammad Hasan Basri, and Noer Wahid Riqzal Firdaus. 2020. "Latihan Speed, Agility and Quickness (Saq) Untuk Meningkatkan Kelincahan Pada Atlet Futsal Puslatcab Tahun 2020." Jurnal Kejaora (Kesehatan Jasmani Dan Olahraga) 5(2):62–65. doi: 10.36526/kejaora.v5i2.1033.

Ndaru Kukuh Masgumelar, and Pinton Setya Mustafa. 2021. "Pembelajaran Pendidikan Olahraga Berbasis Blended Learning Untuk Sekolah Menengah Atas." Jurnal Kejaora (Kesehatan Jasmani Dan Olahraga) 6(1):133–44. doi: 10.36526/kejaora.v6i1.1222.

Nugroho, Haris, Satria Yudi Gontara, Prayogi Dwina Angga, Gatot Jariono, and Inosen Lingsir Maghribi. 2021. "Quality Of Physical Condition Of Youth Pencak Silat Athletes Reviewed From Speed, Power, and Strength." Kinestetik : Jurnal Ilmiah Pendidikan

Jasmani 5(1):154–62. doi: 10.33369/jk.v5i1.14376.

Prasetyo Widiyono, Ibnu, and Mudiono. 2021. "Keterampilan Dasar Futsal Peserta Ekstrakurikuler Di SMK Ma'arif 1 Kebumen Tahun Ajaran 2019/2020." JUMORA: Jurnal Moderasi Olahraga 1(01):10–17. doi: 10.53863/mor.v1i01.129.

Satrio Sakti Rumpoko, Karlina Dwi Jayanti, Rima Febrianti3, Arif Rohman Hakim, Sunjoyo Sunjoyo, and Vera Septi Sistiasih. 2022. "Tingkat Kebugaran Jasmani Mahasiswa Prodi Pendidikan Olahraga." Jurnal Porkes 5(1):260–71. doi: 10.29408/porkes.v5i1.5635.

Sakti, Teguh Muhamad, and Fahrudin. 2021. "Tingkat Kecemasan Atlet Futsal Siswa Ekstrakurikuler Di SMK Tri Asyifa Cikampek." Jurnal Literasi Olahraga 2(2):121.

Subekti, Nur, Agam Akhmad Syaukani, Anugrah Nur Warthadi, Amar Abdullah Dani Arni Raihan, and Raihan Budianto. 2021. "Design Of Speed, Agility, Quickness Exercises To Improve The Physical Fitness Of Students At The Muhammadiyah University Of Surakarta In Terms Of Speed and Endurance." Kinestetik : Jurnal Ilmiah Pendidikan Jasmani 5(4):809–18. doi: 10.33369/jk.v5i4.19772.

Sunardi, Jaka, and Erwin Setyo Kriswanto. 2020. "Perilaku Hidup Bersih Dan Sehat Mahasiswa Pendidikan Olahraga Universitas Negeri Yogyakarta Saat Pandemi Covid-19." Jurnal Pendidikan Jasmani Indonesia 16(2):156–67. doi: 10.21831/jpji.v16i2.35082.

Swastika, Herningtyas, Swastika, and Fata Khasanah, Nidaul. 2017. "Sistem Informasi Reservasi Lapangan Futsal Pada Futsal Corner Menggunakan Metode Waterfall." Jurnal Mahasiswa Bina Insani 1 No.2(2):251–66.

Taufik, Muhamad Syamsul. 2019. "Hubungan Tingkat Konsentrasi Dengan Keterampilan Bermain Futsal Unit Kegiatan Mahasiswa Futsal Universitas Suryakancana." Gladi : Jurnal Ilmu Keolahragaan 10(02):68–78. doi: 10.21009/gjik.102.01.

Wijaya Kusuma, I. Dewa Made Aryananda. 2021. "Teknik Yang Paling Dominan Pada Pertandingan Futsal Putra Profesional." Jurnal Keolahragaan 9(1):18–25. doi: 10.21831/jk.v9i1.31853.

Yuniarto, Andryas, Supriyadi Supriyadi, and I. Nengah Sudjana. 2018. "Pengembangan Media Pembelajaran Berbasis Mobile Learning Teknik Dasar Dan Peraturan Permainan Futsal." JP.JOK (Jurnal Pendidikan Jasmani, Olahraga Dan Kesehatan) 2(1):51–62. doi: 10.33503/jpjok.v2i1.188.