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Agility analysis reviewed from the positions of defender, midfielder, and striker in young football players

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Abstract

The research aims to analyze agility in terms of the defender, midfielder, and striker positions of football players. The research method is descriptive quantitative with a retrospective approach. Participants are ten players divided into four defenders, three midfielders, and three strikers. Participants were male football players aged 14-15 years. The sampling technique is purposive, namely with the criteria (1) in the same club, (2) core players, and (3) already having experience competing at the regional level. Data collection techniques through observation and tests. Data analysis techniques for comparison of the Wallis curve and Post Hoc tests. The research instrument is arrowhead agility. The right arrowhead agility research results obtained a significance of $0.35 < 0.05$, and the left arrowhead agility was $0.089 > 0.05$. Post hoc results arrowhead agility right midfielder-striker $0.891 > 0.05$, midfielder-defender $0.024 < 0.05$, striker-defender $0.034 < 0.05$. It was concluded that there was a significant difference in the agility of the right arrowhead in the positions of midfielder-defender and striker-defender. There was no significant difference between striker-midfielder. There is no significant difference in the overall left arrowhead. It is hoped that even though this research is simple, it will provide information for academics and football coaches to continue to develop agility optimally with more specific methods.

Keywords: Agility, youth football, player positions

Introduction

Football is an intermittent team sport in which players frequently switch between high and low-intensity movements, such as running, jumping, shooting, speeding up, and decelerating, and low to moderate-intensity exercises, such as walking, jogging and even standing still ^[1]. Football has become a popular sport today. Anyone can play football for fun, fitness, and success ^[2].

The meaning of the football game is very popular worldwide and is held at various levels, including global, continental, international, national, and even remote regional levels ^[3]. In football, dribbling is an important skill used to face opponents and trick defense to achieve goals such as conducting attacks, getting past the opponent's defense, managing the flow of play on the field, and scoring goals to increase the team's score. These skills ensure that the game is efficient and effective ^[4]. High achievements can only be achieved through the entire team's hard work, which requires persistent practice and careful preparation ^[5].

To achieve this goal, many topics need to be researched, such as physiology, psychology, engineering, tactics, and physics. It is following the opinion of experts who state that football is a sport that is widely studied and practiced throughout the world ^[6]. It is very important to optimize the game of football with excellent physical condition. Excellent physical condition is one of the determining factors for the success of a football player. As we can see, apart from running, football movements also require physical skills such as dribbling, receiving, kicking, and heading ^[7]. If the physical components are insufficient, this cannot be conducted perfectly.

The physical aspects of football include endurance, speed, and agility. Agility is one of the physical conditions that every football player must have. Agility is the ability to change the direction of movement. However, the definition of agility has undergone a re-definition, namely, the ability to change direction quickly with a stimulus ^[8]. Athletes respond to external stimuli, which is why it is called reactive agility ^[9].

It significantly impacts offensive and defensive tactics, which helps determine how a competitive match will play out. The agility aspect in football greatly influences performance in matches. Apart from that, to determine the trainer's agility abilities, they need to conduct test analysis and measurements [10]. In real cases, players simultaneously dribbling and running and passing opponents require optimal agility. It means that agility is an important aspect of football.

Agility is an important factor in physical fitness and is used as a standard in athlete measurement tests and other tests. Various tests can measure agility, whereas previous tests used different test items. A track and stopwatch were used as tools to measure agility. Help to measure time [11].

Additionally, trainers must master good teaching, analysis, management, and leadership skills. Analytical skills relate to how coaches can interpret physical test data obtained from physical tests. After getting the data, we need to interpret it in a basic way and a good evaluation. Previous studies regarding tests and survey measurements of physical conditions in football, of course, already exist, such as the study from Sonesson *et al.* [12], Friebe *et al.* [13], Hadi & Maliki [14], Ash'ary [15].

Several studies described by previous research are still classified as general analyses and surveys, such as analysis of speed, strength, and endurance. However, the measurement tests in physical condition surveys that discuss agility regarding player positions, such as midfielders, defenders, and strikers, have not yet received special attention.

Remember that analyzing agility in positions such as defender, midfielder, and striker is important. It does not necessarily mean that striker players have better agility. They could be better midfielders and defenders. It means that scientific proof is required. Even though this seems simple, research studies need to be conducted. Previous studies were still classified as interpreting the results in general. However, in the author's research, they were more specific in interpreting the results by reviewing agility according to the position of the football player. Apart from that, agility analysis has not been measured at the Terang Bangsa Semarang Club, so this is the urgency of this

research.

There was a gap in previous research in this contest, and an analysis of the club's agility was needed. Therefore, this research aims to analyze agility in terms of defender, midfielder, and striker positions in football players aged 14-15 years.

Materials and Methods

Study Participants

This descriptive and quantitative research uses a retrospective approach to explain data and produce conclusions. The sampling method involves testing and measuring. This research involved 10 Terang Bangsa Semarang football players aged between 14-15. The participants consisted of 3 striker positions, three midfielders, and four defenders. The criteria for participants must be in the same club, are core players, and have experience competing at the regional level. Participants must actively play in a football club, have never been injured, follow all the examiner's instructions, and perform well on the test [7]. In this study, the agility of football players was tested optimally. Right arrowhead and left arrowhead agility are measured in this study.

Study Organization

This research aims to analyze agility in terms of defender, midfielder, and striker positions in football players aged 14-15 years [16]. The author uses the arrowhead agility test to carry out testing and measurements. This test is considered relatively simple and cheap. A person's ability to quickly change goals in response to a stimulus (reactive agility) is known as agility [17]. Noon *et al.*, The arrowhead agility test consists of four sprints, two each right and two left, with a two-minute rest between each sprint. To complete the run, each athlete starts 50cm behind the starting line and runs 10m forward towards a cone. Each athlete from the cone turns perpendicular to the cone 5m away before turning to the cone 15 m straight from the starting line, then turns away from the cone to accelerate in a straight line 15 m past the initial starting line. The fastest time recorded for analysis data. Time gates are used to calculate completion time [18].

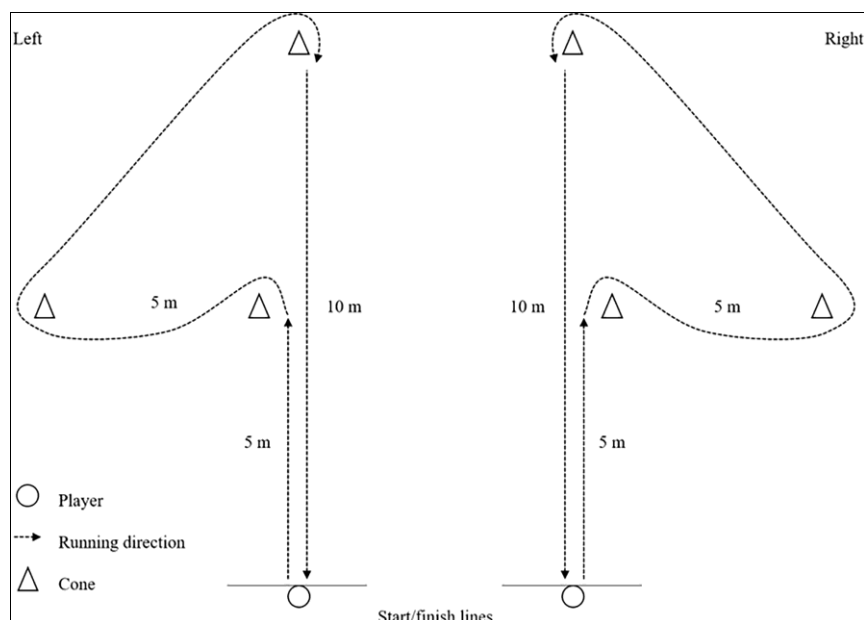


Fig 1: Arrowhead agility test.

Table 1: Arrowhead agility test norms for 14 years old.

| Test | Category (seconds) | | | | |
|-------------------------|--------------------|---------|---------|----------|-----------|
| | Excellent | Good | Average | Poor | Very Poor |
| Right Arrowhead Agility | < 8.9 | 8.9-9.2 | 9.3-9.7 | 9.8-10.2 | > 10.2 |
| Left Arrowhead Agility | < 8.9 | 8.9-9.2 | 9.3-9.6 | 9.7-10 | >10.1 |

Source: Faudji, I. (2023).

Statistical Analysis

Data was processed using Excel and SPSS applications. Data is described through quantitative descriptive analysis, which includes mean, minimum, maximum, and standard deviation values. Next, the Kruskal Wallis nonparametric comparison test and post hoc tests were used [7].

Results

Table 2: Descriptive results of youth football players' right agility data.

| Position | Category | N | Mean | Min | Max | Std. Deviation |
|------------|-------------------------------|---|------|------|------|----------------|
| Striker | Right Arrowhead agility (sec) | 3 | 8.86 | 8.80 | 8.92 | .06000 |
| Midfielder | | 3 | 9.00 | 8.80 | 9.41 | .35218 |
| Defender | | 4 | 9.55 | 9.45 | 9.63 | .08139 |
| Striker | Left Arrowhead agility (sec) | 3 | 8.63 | 8.47 | 8.90 | .23516 |
| Midfielder | | 3 | 8.56 | 8.11 | 8.94 | .41940 |
| Defender | | 4 | 8.84 | 8.58 | 9.01 | .19805 |

Based on Table 2 above, it is known that the mean value of the right arrowhead agility variable for the striker position is in the excellent category with a value of 8.89, the midfielder position is in the good category with a value of 9.0, and the defender position is in the average category with a value of 9.55. In the left arrowhead agility variable, it is known that

Table 4: Post hoc arrowhead agility test results.

| Samples | Statistical Tests | Std. Error | Std. Test Statistics | Sig. | Adj. Sig |
|---------------------|-------------------|------------|----------------------|------|----------|
| Midfielder-Striker | .333 | 2,442 | .137 | .891 | 1,000 |
| Midfielder-Defender | -5,167 | 2,284 | -2,262 | .024 | .071 |
| Striker-Defender | -4,833 | 2,284 | -2,116 | .034 | .103 |

Based on the results of the Post Hoc arrowhead agility variable agility test shown in Table 4, the comparison between the midfielder and striker positions has a significance level of 0.891, which means there is no significant difference. Meanwhile, the comparison of midfielder and defender positions has a significance level of 0.024, which means there is a significant difference. Finally, the comparison of striker and defender positions has a significance level of 0.034, meaning a significant difference exists.

Discussion

This research aims to analyze agility in terms of defender, midfielder, and striker positions in football players aged 14-15 years. Based on the Kruskal Wallis test shows that there is no significant difference in the left arrowhead agility variable with a significance value of 0.089 > 0.05. Then, there is a significant difference in the right arrowhead agility variable with a significance value of 0.035 > 0.05.

However, a more in-depth analysis is needed, followed by a Post Hoc test on the right arrowhead. The post hoc test results on the right arrowhead agility variable showed no significant difference in the midfielder and striker positions, with a significance value of 0.891. Then, there was a

significant difference in the midfielder and defender positions with a significance value of 0.024. At the same time, there was a significant difference between the striker and defender positions, with a significance value of 0.034. The results of this study show that in agility tests, strikers and midfielders have better results than defender positions. It is because each player's position has different main tasks and technical dominances, according to the main tasks of each football player's position. Strikers have the main task in the game of football, namely, to score as many goals as possible against the opponent's goal. A good striker is a player who has above-average basic shooting techniques [19]. Some wingers work on the right or left side of the field. The main task of a midfielder is to control the tempo of the game and support the role of defenders and strikers in the team [20]. Defenders in football have the main task of blocking and covering the opposing team's movements [21]. Good physical condition is needed in football to achieve good performance, and the agility component is one of them. Agility in football is essential because dynamic movements are required to catch the ball quickly amidst various obstacles in this sport [22]. In football, agility is also defined as a player's ability to change their movements quickly without losing balance [23]. The more agility a player

Table 3: Kruskal Wallis agility test results.

| Variables | Significance | Description |
|-------------------------|--------------|-----------------|
| Right Arrowhead agility | 0.035 | Significant |
| Left Arrowhead agility | 0.089 | Not Significant |

Based on Table 3 above, it is known that the Kruskal Wallis test on the right arrowhead agility variable has a significance value of 0.035 < 0.05, thus indicating that there is a significant difference between strikers, midfielders, and defenders. The significance value of the left arrowhead agility variable is 0.089 > 0.05. It means that the left arrowhead agility variable shows an insignificant difference between the positions of striker, midfielder, and defender. In the explanation, it is stated that there is no significant difference between the positions of striker, midfielder, and defender. However, more in-depth testing needs to be carried out using Post Hoc tests to see a comprehensive analysis. The results of the post hoc agility test are presented in Table 4 below:

has, the more efficient his movements will be ^[24]. Agility can be defined as the ability to perform movements quickly, including stopping and moving again, and to change body direction responsively to stimuli ^[8]. Agility is an important aspect of performance sports, especially sports requiring quick direction changes ^[25]. Some of these statements are supported by research showing that agility is important to football performance ^[26].

Football is a team game where each team consists of eleven players, one of whom is the goalkeeper. The goal of the football game is for the players to score as many goals as possible against the opposing team while also trying to prevent the opposing team from scoring goals into their own goal. Each player must work together and be physically able to achieve these goals. In this case, the role of the trainer is very important in developing training programs and providing appropriate training materials, especially for the agility component. Ball feeling and ladder drill training can be applied to improve the agility of football players. Ball feeling training is a form of individual skills training conducted by players using their feet to control, manipulate, and direct the sensation of the ball ^[4]. Various aspects of ball sensation arise related to sensitivity and perception of foot agility when controlling, receiving, and kicking the ball well. In addition, agility is a prerequisite for learning and improving movement skills and sports techniques, especially movements requiring high ability to respond to game situations ^[27]. Apart from ball feeling training, which aims to improve ball control, football players also need support from ladder drill training as a program to improve agility. It ensures that ball control and agility can be combined effectively when dribbling the ball.

Ladder drill training is a form of agility training involving using an agility ladder to perform various jumping, running, and leaping movements to improve agility ^[4]. The ladder drill method is a tool that consists of stacked stairs. Utilizing a method that involves a ladder drill can help each individual learn to move quickly and efficiently according to their abilities ^[28]. Also, agility training must be varied using new concepts, including blaze pod training. Blaze Pod is a system consisting of pods that generate visual signals. These signals were specifically developed to aid training using color-coded lights for different activities. Reflex training with the blaze pod combines cognitive training, which improves the brain's thinking and processing abilities, with physical training that maximizes the athlete's movement skills ^[29]. Blaze pods can be strategically positioned to significantly improve response time, agility, power, strength, and decision-making ^[30].

Therefore, athletes and coaches must analyze their physical condition through testing and measurement. Tests and measurements are important to overview physiological, psychological, skills, and physical profiles. Through testing and measurement, coaches can assess their athletes' physical abilities ^[31]. In addition, managers can plan and improve aspects considered less than optimal. Currently, more coaches are carrying out tests and measurements, although detailed analysis based on player position is still limited. It is the reason the author conducted this research.

Conclusions

Based on the results and discussion presented, it can be concluded that in the right arrowhead agility test, there are significant differences between the positions of midfielder

and striker. Apart from that, there are significant differences in the positions of midfielder and defender. However, there is no significant difference in the striker and defender positions. It shows that agility in the defender position needs more attention to improve agility. In essence, playing position is one of the fundamental factors in adjusting training and determining the right training dosage. Therefore, it is hoped that this research will be useful for trainers as a basis for developing training programs and for academics to expand their current references. However, this research has several shortcomings, including the limitation of a relatively small sample; it is necessary to examine the female gender sample and not only assess based on body mass index categories. It means that a more in-depth study is hoped to be conducted in future research.

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