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Mevkilerine Göre Futsal Oyuncularının Farklı Çeviklik Testlerine Verdikleri Cevapların Araştırılması

Investigation of Futsal Players' Answers to Different Agility Tests According to Their Positions

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INVESTIGATING THE AGILITY TEST RESPONSES OF FUTSAL PLAYERS BASED ON THEIR POSITIONS

ABSTRACT

There are many features that athletes must have in order to be successful in futsal. One of these features is agility based on rapid and sudden change of direction. This study was conducted to examine the agility of futsal players playing in different positions (goalkeeper, defense and attack) and to analyze their responses to different agility tests. The research data were obtained by subjecting indoor soccer players playing in the Universities Futsal League to agility tests and revealing their answers at the end. 30 futsal players playing in the Turkish Universities Futsal League, with an average age of 21.57±1.97 years, participated in the research voluntarily. Pro-Agility Test, 505 and Zig Zag agility tests were used to determine agility characteristics. Futsal players participating in the research, Pro-Agility agility test values 4.56±0.29 sec, 5 0 5 agility test values 2.33±0.18 sec, Zigzag agility test values with the ball 8.33±0.39 sec and without the ball Zigzag agility test values were found to be 6.44±0.31 sec. When futsal players' answers to different agility tests are compared according to their positions; In all tests, it was determined that the players playing in the offensive zone had the best agility test values; Statistically significant differences were found in the values of Pro-Agility test, 505 agility test, zig-zag test with and without the ball ($p<0.05$). As a result; In futsal, where there are many rapid and sudden changes in direction, the agility of the players is considered very important for the players in all positions. It can be said that the agility feature of futsal players is in good condition regardless of position, regular measurement of agility features with and without the ball, including studies to improve the agility feature in the trainings, are some very important criteria for the athletes to reach the desired performance level.

Keywords: Futsal, Agility, Position.

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MEVKİLERİNE GÖRE FUTSAL OYUNCULARININ FARKLI ÇEVİKLİK TESTLERİNE VERDİKLERİ CEVAPLARIN ARAŞTIRILMASI

ÖZ

Futsalda başarının sağlanabilmesi için sporcuların sahip olması gereken birçok özellik bulunmaktadır. Bu özelliklerden birisi de hızlı ve ani yön değiştirme temeline dayalı çeviklik özelliğidir. Bu çalışma, farklı mevkilerde (kaleci, defans ve hücum) oynayan futsal oyuncularında çevikliğin incelenmesi ve farklı çeviklik

testlerine verdikleri cevapların analiz edilmesi amacıyla yapılmıştır. Araştırma verileri, Üniversiteler Futsal Liginde oynayan salon futbolu oyuncularının çeviklik testlerine tabii tutulmaları ve verdikleri cevapların sonunda ortaya çıkarılması ile elde edilmiştir. Araştırmaya 21,57±1,97 yıl yaş ortalamasına sahip olan Türkiye Üniversiteler Futsal Liginde oynayan 30 futsal oyuncusu gönüllü olarak katılmıştır. Çeviklik özelliklerinin belirlenmesinde, Pro-Agility Test, 505 ve Zig Zag çeviklik testlerinden yararlanılmıştır. Araştırmaya katılan futsal oyuncularının, Pro-Agility çeviklik testi değerleri 4,56±0,29 sn, 5 0 5 çeviklik testi değerleri 2,33±0,18 sn, Topla Zigzag çeviklik testi değerleri 8,33±0,39 sn ve topsuz Zigzag çeviklik testi değerleri 6,44±0,31 sn olarak bulunmuştur. Mevkilerine göre futsal oyuncuların farklı çeviklik testlerine verdikleri cevaplar karşılaştırıldığında; yapılan tüm testlerde, hücum bölgesinde oynayan oyuncuların en iyi çeviklik testi değerlerine sahip olduğu belirlenirken; Pro-Agility test, 505 çeviklik testi, topla ve topsuz zigzag testi değerlerinde istatiksel olarak anlamlı düzeyde farklılıklar tespit edilmiştir ($p<0,05$). Sonuç olarak; hızlı ve ani yön değiştirmelerin çok sayıda olduğu futsalda, oyuncuların çeviklik özellikleri tüm mevkilerde yer alan oyuncular açısından oldukça önemli görülmektedir. Futsal oyuncularında çeviklik özelliğinin mevki gözetmeden iyi durumda olması, topla ve topsuz çeviklik özelliklerinin düzenli aralıklarla ölçülmesi, yapılan antrenmanlarda çeviklik özelliğini geliştirici çalışmalara mutlaka yer verilmesi, sporcuların istenilen performans seviyesine ulaşmasında oldukça önemli bazı kriterler olarak söylenebilir.

Anahtar Kelimeler: Futsal, Çeviklik, Mevki.

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INTRODUCTION

Futsal, which is a 5-man (1 goalkeeper and 4 players) version of football, which continues to increase in popularity around the world, consists of two high-intensity and intermittent periods that require competitive play conditions and significant technical, tactical and physical efforts of the players (Naser et al., 2017). In futsal, each team has unlimited substitutions. Unlike football, which consists of two halves of 45 minutes, in futsal, the match is organized as two 20-minute games with the clock that can be stopped for various reasons depending on the rules (Beato et al, 2016). Futsal is a high-intensity intermittent sport in which quick accelerations and short sprints (usually ranging from 1 to 4 seconds) are performed at a maximum or sub-maximum intensity. In futsal, these actions take place over two twenty-minute halves with short recovery periods (Berdejo-del-Fresno et al., 2015).

The dominant physical conditioning components in futsal are expressed as endurance, explosive power, speed and agility (Barasakti & Faruk, 2019). Agility is

expressed as the ability to accurately control and maintain body position while simultaneously changing direction through successive movements (Twist & Benicky, 1995). Agility, which is seen as one of the important criteria that can contribute to the success of teams in sports branches such as futsal, is expressed as the ability to pause suddenly and accelerate again by changing direction, which is very important especially for futsal branch (Little & Williams, 2005).

It is necessary for a futsal player to move very quickly during the match, to change places very quickly and quickly, to reproduce both in attack and defense, to play one-on-one games well, to cover distance with or without the ball in defense and offense (Ocak & Buğdaycı, 2011). Some studies in the literature to evaluate the agility of futsal players (Amiri-Khorasani et al., 2010; Benvenuti et al., 2010; Milanovic et al., 2011; Açak et al., 2012; Alvurdu et al., 2016; Berdejo-del Fresno et al., 2015; Sekulic et al., 2019; Tanyeri & Öncen, 2020). However, it is seen that the studies in which the agility characteristics of futsal players are evaluated for their positions have not yet been concentrated on.

In futsal, as in other team sports, there are game systems in different formats. Teams that want to play defensively in futsal generally prefer systems such as 3-1, 2-1-1, 2-2. On the other hand, teams that want to play offensively prefer systems such as 1-3, 1-1-2, 1-2-1 (Günay et al., 2017).

Futsal branch consists of players in three different positions as goalkeeper, defense and attack in terms of positions. In this context, this study was carried out to examine the agility of futsal players playing in different positions and to analyze their responses to different agility tests. From this point of view, the research data obtained with the agility tests of indoor football players playing in the Universities Futsal League and their answers were analyzed by comparing them in terms of the criteria of playing in different positions (goalkeeper, defense and attack).

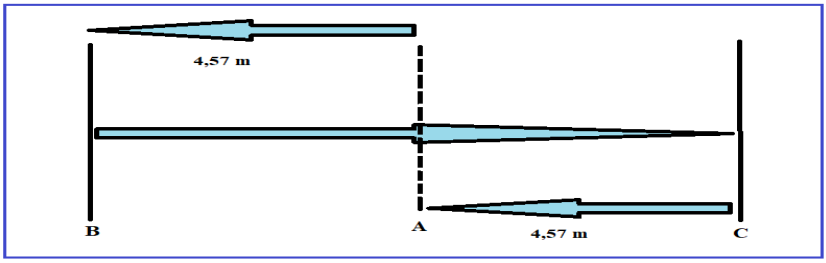
METHOD

Research Group

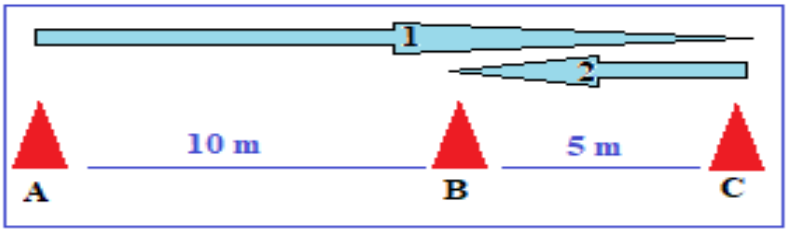
This study was conducted to examine the agility of futsal players playing in different positions and to analyze their responses to different agility tests. 30 futsal players voluntarily participated in the research, with an average age of 21.57±1.97 years and playing in the Turkish Universities Futsal League in the 2021-2022 academic year.

Data Collection Tools: Futsal players were taken to Pro-Agility Test, 505 and Zig Zag agility tests to determine their agility characteristics, and photocell device was used to take time measurements.

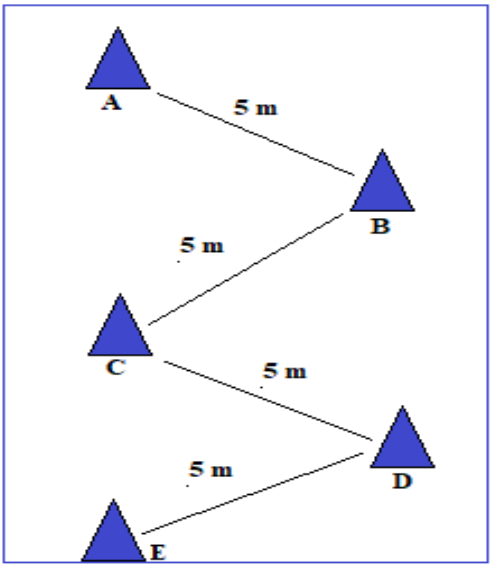
Pro-Agility Test: The Pro-agility test, which is widely used to evaluate the performance of change of direction in athletes, provides an understanding of the ability to change direction by giving the total time. This test consists of a total distance of 20 yards (18.28 m). After the athlete starts at the center line (A), to finish the test 4.57 m (5 yards) left (B), then 9.14 m (10 yards) right (C) and 4.57 m (5 yards) back (A) runs (Forster et al., 2021).



505 agility test: In this test, the distance is a total of 15 m. Evaluation is made by measuring the time between the last 5 m of the test between the B and C cones and its return. The time elapsed in the first 10 m approach run from the start in cone A to cone B is not added to the test score. The departure and return time of the 5 m distance between the B and C cones was recorded in seconds (Hazır et al., 2010).



Zig-Zag agility test: During the zig-zag agility test (ZIG-ZAG), the test site consists of four 5 m sections set at 100° angles. The Zig-Zag test requires the acceleration, deceleration and balance control aspects of agility in athletes. In the test, the time starts when the athlete leaves the A cone with a sound signal and stops when he passes through the gate located in the E cone. The time is recorded in seconds (Sekulic et al, 2013).



Data Collection: Before starting the research, ethical approval of the study was obtained with the decision dated 04.03.2022 and numbered 27 from the Non-Interventional Clinical Research Ethics Committee of Selcuk University Faculty of Sport Sciences. In the next process, Pro-Agility Test, 505 and Zig Zag agility tests were used to determine the agility characteristics of futsal players, and agility test measurements were carried out on the appropriate days and times of the athletes.

Within the scope of the research, indoor soccer players in the Universities Futsal League and playing in the men's Futsal teams of Mugla Sitki Kocman University and Selcuk University were subjected to agility tests. A warm-up protocol was applied to the futsal players before the measurements. The data obtained at the end of the answers given by the athletes were evaluated by comparing them in terms of the criteria of playing in different positions (goalkeeper, defense and attack). The research data were collected during the rest hours of the athletes in April 2022.

Analysis of Data: All data obtained in the study were recorded in the SPSS (18 version) program. The Shapiro-Wilk test was used to determine whether the data were suitable for normal distribution. After calculating the arithmetic mean and standard deviation values of the obtained data, ANOVA was used to calculate the differences between the groups of athletes in different positions, and Post Hoc (Tukey HSD) tests were conducted to determine the groups that created the difference. Significance level was accepted as $p<0.05$.

RESULTS

The findings obtained within the scope of the research are presented and interpreted in this section.

Table 1: Descriptive statistics of the research group

Variables	n	Mean	sd.
Age (years)	30	21.57	1.97
Pro-Agility (sec)	30	4.56	0.29
5 0 5 (sec)	30	2.33	0.18
With Ball Zigzag (sec)	30	8.33	0.39
Without Ball Zigzag (sec)	30	6.44	0.31

The mean age of the futsal players participating in the research is 21.57±1.97 years, the Pro-Agility agility test values are 4.56±0.29 seconds, the 5 0 5 agility test values are 2.33±0.18 seconds, the Zigzag agility test with the ball values are 8.33±0.39 seconds and Zigzag agility test values without ball are 6.44±0.31 seconds.

Table 2: Responses of futsal players to different agility tests according to their positions and ANOVA results

Variables	Position	n	Mean	sd.	ANOVA	Sum of Squares	F	p
Pro-Agility	Goalkeeper	4	5.08	.12	Between Groups	1.592	23.353	<0.001
	Defense	14	4.59	.19	Within Groups	.920		
	Attack	12	4.36	.18	Total	2.512		
5 0 5	Goalkeeper	4	2.69	.13	Between Groups	1.592	22.868	<0.001
	Defense	14	2.30	.09	Within Groups	.920		
	Attack	12	2.25	.12	Total	2.512		

	Goalkeeper	4	8.88	.18	Between Groups	2.300	14.564	<0.001
With Ball Zigzag	Defense	14	8.42	.26	Within Groups	2.132		
	Attack	12	8.04	.32	Total	4.432		
	Goalkeeper	4	6.83	.21	Between Groups	1.117	8.953	0.001
Without Ball Zigzag	Defense	14	6.50	.29	Within Groups	1.684		
	Attack	12	6.25	.19	Total	2.802		

When futsal players' answers to different agility tests are compared according to their positions; In all tests, it was determined that the players playing in the offensive zone had the best agility test values. Statistically significant differences were found in the values of Pro-Agility test, 505 agility test, zig zag test with and without the ball ($p<0.05$).

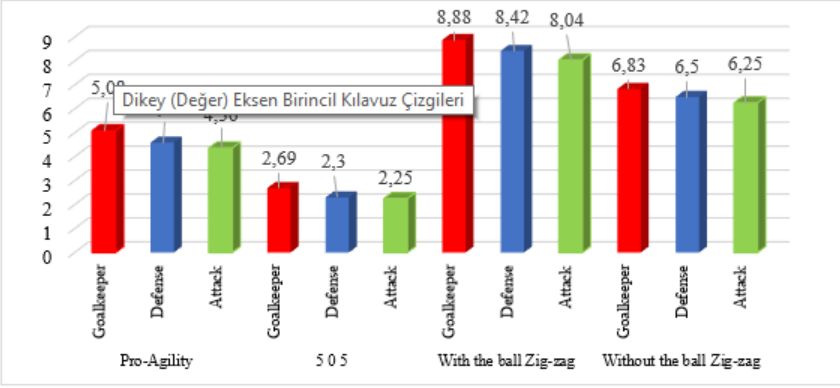


Figure 1: Agility test values of futsal players playing in different positions

Table 3: Tukey HSD test results to determine the group that creates the difference

Dependent Variable	(I) Group	(J) Group	Mean Difference (I-J)	P
Pro-Agility	Goalkeeper	Defense	.48	<0.001
		Attack	.72	<0.001
	Defense	Goalkeeper	-.48	<0.001
		Attack	.23	.009
	Attack	Goalkeeper	-.72	<0.001
		Defense	.23	.009
5 0 5	Goalkeeper	Defense	.38	<0.001
		Attack	.44	<0.001
	Defense	Goalkeeper	-.38	<0.001
		Attack	.05	.463
	Attack	Goalkeeper	-.44	<0.001
		Defense	-.05	.463
With Ball Zigzag	Goalkeeper	Defense	.45	.020
		Attack	.83	<0.001
	Defense	Goalkeeper	-.45	.020
		Attack	.37	.006
	Attack	Goalkeeper	-.83	<0.001
		Defense	-.37	.006

	Goalkeeper	Defense	.33	.063
		Attack	.58	.001
Without Ball Zigzag	Defense	Goalkeeper	-.33	.063
		Attack	.25	.042
	Attack	Goalkeeper	-.58	.001
		Defense	-.25	.042

According to the results of the Tukey HSD test conducted to determine the group that creates the difference; In all tests, players playing in the offensive zone have better agility test values than both defenders and goalkeepers. It was determined that the offensive players were the group that made the difference, and they had significantly ($p<0.05$) better agility test values compared to both the defenders and the goalkeepers in terms of Pro-Agility test, 505 agility test, zig-zag test with and without the ball. It was found that the defenders made a difference to the goalkeepers in Pro-Agility test, 505 agility test, zig-zag test with and without the ball ($p<0.05$).

DISCUSSION AND CONCLUSION

Agility is the ability of the player to perform rapid whole-body movement by changing speed or direction in response to a stimulus (Benvenuti et al., 2010). This study was conducted to examine the agility of futsal players playing in different positions (goalkeeper, defense and attack) and to analyze their responses to different agility tests. In our study, it was determined that futsal players playing in the offensive zone had the best agility test values; It has been revealed that there are statistically significant differences in the values of all agility tests.

When some studies in the literature, which are similar to the subject of our study, are examined; In a study conducted by Ayarra et al., (2018) on futsal players in Spain, 505 agility test values were found to be 2.29±0.09 seconds in 2nd League players, 2.26±0.08 seconds in 3rd League players, and 2.33±0.15 seconds in Junior category players. Yanci et al., (2017) conducted a study with 44 futsal players with a mean age of 22.5±5.0 years, and the test values of the athletes were 2.28±0.09 seconds; Ismail et al., (2020) found the test values of 2.57 seconds. In the study conducted by Andraši´c et al., (2021), it was found that 2.15±0.17 sec. and 2.12±0.21 sec. has been determined. The results of the study of Ayarra et al., (2018) are similar to the results of our study.

In the study conducted by Kutlu et al., (2012), without the ball zigzag agility test values of the athletes were determined as 6.09±0.49 sec. Erdem et al., (2015) determined the without the ball zigzag agility test values of players playing in different positions, 6.11±0.32 sec for defensive players, 6.17±0.51 sec for midfielders, 6.00±000 sec for offensive players, with the ball zigzag agility test values were determined as 8.17±0.62 sec. for defensive players, 8.06±0.80 sec. for midfielders, and 7.75±0.71 sec. for offensive players.

In the study of Bloomfield et al., (2007), in which they evaluated the physical characteristics of the players in three different positions (defender, midfielder and forward) in the English (FA) Premier League football players, the players playing in the offensive zone have better agility characteristics than the defensive and midfield players. Gil et al., (2007) in their study, the best performing group in terms of agility are strikers. On the other hand, the tallest and heaviest players are also the goalkeepers. In addition, they stated that the differences between the athletes playing in different positions will fit the different workloads in the game, and therefore, the training to be done should include special studies for each positional role. In the study conducted by Toruan et al., (2017) on the futsal players of the Bintang Timur Surabaya team in Indonesia, it was determined that 65% of the athletes were in the category of very good and 25% of them in the category of good.

The ability of the athlete to sprint and change direction in order to maintain her speed at maximum speed has been proven by time and motion analysis as determinants of performance in field sports (Sheppard & Young, 2006). The ability to change direction is essential when performing high-speed movements in team sports such as futsal (Serrano et al., 2020). According to the results of the study, it is seen that the group that creates the difference in agility values is the players playing in the offensive zone and these players have better agility values than both the defenders and the goalkeepers.

As a result, while futsal game is a sport in which there are many rapid and sudden changes in direction, the agility of the players is considered very important for the players in all positions. It is necessary to measure the agility of futsal players at regular intervals in order to determine the level of agility with and without the ball. Based on the results obtained in the research, it can be said that there are some important criteria that should be taken into consideration in order for the athletes to reach the desired performance level.

Conflict of Interest Statement

There is no personal or financial conflict of interest between the authors of the article within the scope of the study.

Author Contribution Rates:

Design of Study: KG (%40), GH (%30), TK (%30)

Data Acquisition: KG (%50), GH (%50)

Data Analysis: KG (%50), GH (%50)

Writing Up: KG (%40), GH (%30), TK (%30)

Submission and Revision: KG (%70), GH (%20), TK (%10)

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