



Investigation of the Relationship Between the Tactical Skills Used by Football Players and Their Maximum Performance Levels*

Serdar YILDIRIM^{1A}, Kemal GÖRAL^{2B}

¹ Mugla Sıtkı Kocman University, Institute of Health Sciences, Department of Coaching Education, Mugla, TÜRKİYE

² Mugla Sıtkı Kocman University, Sport Science Faculty, Department of Coaching Education, Mugla, TÜRKİYE

Address Correspondence to Serdar YILDIRIM: e-mail: serdaryildirim_7@hotmail.com

* This study was produced from the master's thesis completed by Serdar Yıldırım at Mugla Sıtkı Kocman University Health Sciences Institute.

Conflicts of Interest: The author(s) has no conflict of interest to declare.

Copyright & License: Authors publishing with the journal retain the copyright to their work licensed under the CC BY-NC 4.0.

Ethical Statement: It is declared that scientific and ethical principles have been followed while carrying out and writing this study and that all the sources used have been properly cited.

(Date Of Received): 19.09.2023 (Date of Acceptance): 23.11.2023 (Date of Publication): 31.12.2023

A: Orcid ID: 0000-0002-6385-1211 B: Orcid ID: 0000-0001-8030-2276

Abstract

This study was conducted to investigate the relationship between the tactical skills used by amateur and professional league football players and their excellent performance levels. A total of 906 licensed football players, including 671 male and 235 female athletes, who play at amateur and professional levels in football leagues, participated in the research. Three different forms were used as data collection tools: Personal Information Form, Tactical Skills in Sports and Excellent Performance in Sports Scale. According to the findings of the study, 25.9% of the football players participating in the study were female and 74.1% were male. While the mean age of female football players was 20.06 ± 3.18 years, the average age of male football players was determined as 23.34 ± 5.62 years. In the study, a significant difference was found between the sub-dimensions of tactical skills in sports and the total scores of male and female football players. Similarly, it has been observed that male athletes have higher scores than female athletes in excellent performance scores. According to the years of playing licensed football, there were significant differences in all sub-dimensions of the tactical skills of the football players, between the athletes who played football between 1-5 years and all other groups who played football for more years ($p < 0.05$). Based on the findings obtained in the research, it has been observed that there is a difference in terms of the tactical skills used by football players according to the year of playing football, and while tactical skills and excellent performance scores in sports differ according to gender, they do not differ in terms of status (amateur-professional). As a result, it seems that increasing the number of years of licensed football playing in amateur and professional league football players is very important in terms of tactical skills. From this point of view, it can be said that increasing the experience period of both male and female football players by trying to reduce the age of starting sports to earlier ages will make a significant contribution to tactical skills, which are very important for performance in football.

Keywords: Football, Tactics, Skill, Excellent Performance.

Özet

Futbolcuların Kullandıkları Taktiksel Beceriler ile Mükemmel Performans Düzeyleri Arasındaki İlişkilerin Araştırılması

Bu çalışma, amatör ve profesyonel lig futbolcularının kullandıkları taktiksel beceriler ile mükemmel performans düzeyleri arasındaki ilişkilerin araştırılması amacıyla yapılmıştır. Araştırmaya, Türkiye Futbol liglerinde amatör ve profesyonel düzeyde aktif olarak oynayan 671 erkek ve 235 kadın sporcu olmak üzere 906 lisanslı futbolcu katılmıştır. Veri toplama araçları olarak, kişisel bilgi formu, Sporda Taktiksel Beceriler Envanteri ve Sporda Mükemmel Performans Ölçeği olmak üzere üç farklı form kullanılmıştır. Araştırmada elde edilen bulgulara göre, çalışmaya katılan sporcuların %25.9'u kadın, %74.1'i ise erkektir. Kadın futbolcuların yaş ortalamaları 20.06±3.18 yıl iken, erkek futbolcuların yaş ortalamaları 23.34±5.62 yıl olarak belirlenmiştir. Araştırmada kadın ve erkek futbolcuların, sporda taktiksel beceri alt boyutları ile toplam puanları arasında anlamlı farklılık bulunmuştur. Benzer şekilde mükemmel performans puanlarında da erkek sporcuların kadın sporculara göre yüksek puana sahip oldukları görülmüştür. Lisanslı futbol oynama yıllarına göre futbolcuların sporda taktiksel beceriler alt boyutlarının tümünde, 1-5 yıl arasında futbol oynayan sporcular ile daha fazla yıl futbol oynayan diğer tüm gruplar arasında anlamlı düzeyde farklar bulunmuştur ($p<0.05$). Araştırmada elde edilen bulgulardan yola çıkarak, futbolcuların kullandıkları taktiksel beceriler açısından, futbol oynama yılına göre farklılaşma olduğu, sporda taktiksel beceriler ve mükemmel performans puanlarının cinsiyete göre farklılaşırken, statü (amatör-profesyonel) açısından farklılaşmadığı görülmüştür. Sonuç olarak, amatör ve profesyonel lig futbolcularında lisanslı olarak futbol oynama yılının artmasının taktiksel beceriler açısından oldukça önemli olduğu görülmektedir. Bu noktadan hareketle, hem kadın hem de erkek futbolcularda, spora başlama yaşının daha erken yaşlara indirgenmesine çalışılarak deneyim sürelerinin artırılmasının, futbolda performans için oldukça önemli bir yeri olan taktiksel becerilere önemli katkılar sağlayacağı söylenebilir.

Anahtar Kelimeler: Futbol, Taktik, Beceri, Mükemmel Performans.

INTRODUCTION

Football, due to its unpredictable, random and complex nature (7), requires a permanent tactical-strategic attitude from its players to solve problem situations that arise within the person-task-environment relationship. In this context, the cognitive processes underlying decision-making allow the player to propose solutions to problem situations that arise from the game (14;16). As a result of the game achieved after every match in football, the psychological and physiological needs of football players increase. This situation causes the football player to push his physical and psychological upper limits every day. Based on this, today's football is always open to improvement physically and mentally in order to achieve what seems impossible, and when they succeed in achieving what they want, "what can be done differently?" and "how can the competition be won? It is a branch that makes you think about questions (22).

Since teamwork is required in football, effective application of technical and tactical skills during the match, as well as working as a team, also affects success. From this perspective, for a successful competition to be achieved, a football player with a high performance level must have strong tactical skills and technique, be effective in instant thinking and decision-making skills, be prone to team work, and be physically competent (1).

Tactics are all the organized work implemented to achieve the goals of the game. In this respect, the role and meaning of tactical training in sports sciences is very important. Tactical training has a high place in both individual sports branches and team sports (2). Tactical Skills are a very important element to achieve success in today's modern football (20).

Tactical skills in football refer to the athlete's ability to take the right action at the right time during the match and the ability to quickly adapt to new game transitions and ball circulation. Properly applied and directed tactical skills are a strategy and tactics used to challenge the opponent. Strategy is a plan, such as instructions and specific positioning, used to face different game situations, while tactics are a timely adaptation to new game configurations and circulation of the ball (9).

In order to achieve ideal performance in football, there are high performance items that indicate the development of the individual's emotional and mental factors as well as the excellent performance level that the individual will exhibit. Some of these items can be listed as providing motivation and setting the goal, having a positive, realistic attitude, being self-confident, determined, being concentrated and focused on work, being able to show willpower in difficult conditions, and having a sense of responsibility (12). From this point of view, this study was conducted to examine the tactical skills used by football players and their excellent performance levels.

METHOD

Research Model

This study was designed in a descriptive survey model as it aims to investigate the tactical skills and excellent performance levels of male and female football players playing in Turkish Football Leagues and to reveal the relationship between them as it exists. Descriptive survey models in research aim to describe an existing situation as it exists. In the survey model, an attempt is made to describe the research subject as it is (11).

Participants

The population of the research consists of licensed Professional and Amateur football players in the Turkish Football Leagues in the 2021-2022 football season, and the sample consists of 906 football players, including 671 male and 235 female athletes between the ages of 18-38, playing football in the same season. After receiving ethics committee approval, the football players participating in the research were given their consent on a voluntary basis.

Data Collection Tools

In this research, three different forms were used as data collection tools: personal information form, Tactical Skills Inventory in Sports (TACSIS) and Excellent Performance in Sports Scale (PPS-S).

Tactical Skills Inventory in Sports (TACSIS) was developed by Elferink-Gemser et al. (3). The Turkish adaptation of this scale was made by Yarayan et al (23). TACSIS consists of 4 sub-dimensions and 22 items: Positioning and Decision Making (PDM), Having Knowledge of Ball Movements (HKBM), Knowing Your Opponents (KYO) and Acting in Changing Situations (ACS). Confirmatory factor analysis index values of the scale, $\chi^2/sd(\chi^2=603.89, sd=164)=2.97$, RMSEA=0.094, RMR=0.64, SRMR=0.73, CFI=0.94, NFI =0.91, NNFI=0.93, IFI=0.94, while internal consistency coefficients vary between 0.70 and 0.93 (23).

Performance Perfectionism Scale for Sport (PPS-S): The scale developed by Hill, Appleton and Mallinson (10) was adapted to Turkish by Esentaş et al. (2020). The Spearman-Brown value of the scale was calculated as 0.83 and the Guttman value was 0.80. It was found that the model reached excellent and sufficient fit indices ($\chi^2/sd=2.21$, RMSEA=0.07, GFI=0.97, AGFI=0.92, NFI=0.96, CFI=0.97, AGFI=0.92) (4).

Data Collection and Statistical Analysis

Research data were collected from the football players participating in the study on a voluntary basis through online forms. The evaluation of the data obtained in the research was made in the licensed SPSS 22.0 program. Independent Sample t-test was used to determine the difference between two groups, and one-way ANOVA Test was used to determine whether there was a difference between multiple groups. Tukey HSD was used to determine the group that created the difference, and Pearson correlation tests were applied to determine the relationships between variables. When evaluating the results, the significance level was accepted as $p<0.05$.

Ethical approval and institutional permission

Ethical approval of the research was provided by the approval of Mugla Sitki Kocman University Health Sciences Ethics Committee dated 03.12.2021 and numbered 23. The data collection process of the study started after receiving ethics committee approval and lasted approximately 3 months.

FINDINGS

The findings obtained in this research are shown in the tables below.

Table 1: Age, gender, status and licensed football playing times distribution of the Participants

Variables		N	%
Gender	Female	235	25.9
	Male	671	74.1
Status	Professional	150	16.6
	Amateur	756	83.4
Licensed Active Year Range	1-5 years	148	16.3
	6-10 years	318	35.1
	11-15 years	252	27.8
	16-20 years	115	12.7
	21 years and above	73	8.1
	Total	906	100
		X	Sd
Age (years)	Female	20.06	3.18
	Male	23.34	5.62

It was determined that 25.9% of the football players participating in the research were female and 74.1% male. In the research, the average age of female football players is 20.06±3.18 years, while the average age of male football players is 23.34±5.62 years. Of the athletes participating in the research, 16.6% are professionals and 83.4% amateurs. It was observed that 8.1% of the football players have been playing football with a license for at least 21 years or more, and 35.1% have been playing football for a license period of 6-10 years.

Table 2: Comparison of Tactical Skills and Excellent Performance in Sports by Gender

Variables	Gender	N	Mean±SD	t	P
PDM	Female	235	36.19±7.91	-6.239	0.000*
	Male	671	39.50±6.65		
HKBM	Female	235	16.52±3.85	-7.708	0.000*
	Male	671	18.47±3.12		
KYO	Female	235	20.11±4.75	-6.607	0.000*
	Male	671	22.19±3.91		
ACS	Female	235	16.25±3.95	-5.561	0.000*
	Male	671	17.79±3.53		
TACSIS	Female	235	89.09±18.83	-7.182	0.000*
	Male	671	97.97±15.31		
PPS-S	Female	235	16.41±6.47	-2.241	0.025*
	Male	671	17.61±7.29		

*p<0.05

A significant difference was found between the tactical skills sub-dimensions and total scores of the male and female football players participating in the research. Similarly, it was observed that men had higher scores than women in terms of perfect performance (p<0.05).

Table 3: Comparison of Tactical Skills and Excellent Performance in Sports by Status

Variables	Status	N	Mean±SD	t	P
PDM	Professional	150	38.39±7.50	-482	0.630
	Amateur	756	38.69±7.07		
HKBM	Professional	150	17.46±3.65	-1.963	0.064
	Amateur	756	18.06±3.38		
KYO	Professional	150	21.33±4.38	-1.028	0.304
	Amateur	756	21.72±4.22		
ACS	Professional	150	17.06±3.89	-1.197	0.232
	Amateur	756	17.46±3.66		
TACSIS	Professional	150	94.25±17.66	-1.134	0.257
	Amateur	756	95.95±16.56		
PPS-S	Professional	150	16.99±6.53	-587	0.557
	Amateur	756	17.37±7.22		

*p<0.05

There was no significant difference between the sub-dimensions and total scores of tactical skills in sports of professional and amateur football players participating in the study. Although the excellent performance scores were higher in amateur football players than in professionals, there was no significant difference (p>0.05).

Table 4: Comparison of Football Players According to Years of Licensed Football Playing

Variables		Sum of Squares	Mean Square	F	P
PDM	Between Groups	4609.923	1152.481	24.961	0.000*
	Within Groups	41599.923	46.171		
	Total	46209.847			
HKBM	Between Groups	1042.079	260.520	24.327	0.000*
	Within Groups	9649.056	10.709		
	Total	10691.135			
KYO	Between Groups	1378.801	344.700	20.773	0.000*
	Within Groups	14950.811	16.594		
	Total	16329.613			
ACS	Between Groups	583.710	145.927	11.109	0.000*
	Within Groups	11835.244	13.136		
	Total	12418.954			
TACSIS	Between Groups	25737.113	6434.278	25.420	0.000*
	Within Groups	228057.549	253.116		
	Total	253794.662			
PPS-S	Between Groups	239.163	59.791	1.185	0.316
	Within Groups	45460.758	50.456		
	Total	45699.921			

*p<0.05

When the football players participating in the research are evaluated according to their years of licensed football playing; A significant difference was found between the sub-dimensions and total scores of tactical skills in sports. (p<0.05). When looking at the perfect performance scores, there was no difference according to the years of licensed football playing (p>0.05).

Table 5: Evaluation of Football Players Participating in the Research According to Their Licensed Football Playing Years

	(I) Football Age	(J) Football Age	Mean Difference (I-J)	P
PDM	1-5	6-10	-3.526	0.00*
		11-15	-5.291	0.00*
		16-20	-6.374	0.00*
		21 and above	-7.924	0.00*
	6-10	1-5	3.526	0.00*
		11-15	-1.765	0.02*
		16-20	-2.848	0.00*
		21 and above	4.398	0.00*
	11-15	1-5	5.291	0.00*
		6-10	1.765	0.02*
		16-20	-1.083	0.62
		21 and above	-2.633	0.03*
	16-20	1-5	6.374	0.00*
		6-10	2.848	0.00*
		11-15	1.083	0.62
		21 and above	-1.550	0.55
	21 years and above	1-5	7.924	0.00*
		6-10	4.398	0.00*
		11-15	2.633	0.03*
		16-20	1.550	0.55
KYO	1-5	6-10	-1.970	0.00*
		11-15	-3.098	0.00*
		16-20	-3.366	0.00*
		21 and above	-4.223	0.00*
	6-10	1-5	1.970	0.00*
		11-15	-1.128	0.009*
		16-20	-1.396	0.015*
		21 and above	-2.253	0.00*
	11-15	1-5	3.098	0.00*
		6-10	1.128	0.009*
		16-20	-0.267	0.977
		21 and above	-1.125	0.23
	16-20	1-5	3.366	0.00*
		6-10	1.396	0.015*
		11-15	0.267	0.977
		21 and above	-0.857	0.624
	21 years and above	1-5	4.223	0.00*
		6-10	2.253	0.00*
		11-15	1.125	0.23
		16-20	0.857	0.624
HKBM	1-5	6-10	-1.937	0.00*
		11-15	-2.694	0.00*
		16-20	-2.874	0.00*
		21 and above	-3.847	0.00*
	6-10	1-5	1.937	0.00*
		11-15	-.757	0.048*
		16-20	-0.937	0.066
		21 and above	-1.910	0.00*
	11-15	1-5	2.694	0.00*
		6-10	.757	0.48
		16-20	-0.179	0.988
		21 and above	-1.152	0.062
	16-20	1-5	2.874	0.00
		6-10	0.937	0.066
		11-15	0.179	0.988
		21 and above	-0.973	0.273
	21 years and above	1-5	3.847	0.00*
		6-10	1.910	0.00*
		11-15	1.152	0.62
		16-20	0.973	0.273

Table 5 (Continued): Evaluation of Football Players Participating in the Research According to Their Licensed Football Playing Years

	(I) Football Age	(J) Football Age	Mean Difference (I-J)	P
ACS	1-5	6-10	-1.493	0.00*
		11-15	-2.205	0.00*
		16-20	-2.429	0.00*
		21 and above	-2.243	0.00*
	6-10	1-5	1.493	0.00*
		11-15	-0.71	0.137
		16-20	-0.94	0.124
		21 and above	-0.75	0.502
	11-15	1-5	2.205	0.00*
		6-10	0.71	0.137
		16-20	-0.22	0.982
		21 and above	-0.04	1.000
	16-20	1-5	2.429	0.00*
		6-10	0.94	0.124
		11-15	0.22	0.982
		21 and above	0.19	0.997
	21 years and above	1-5	2.243	0.00*
		6-10	0.75	0.502
		11-15	0.04	1.000
		16-20	-0.19	0.997
TACSIS	1-5	6-10	-8.927	0.00*
		11-15	-13.290	0.00*
		16-20	-15.044	0.00*
		21 and above	-18.239	0.00*
	6-10	1-5	8.927	0.00*
		11-15	-4.363	0.01*
		16-20	-6.117	0.004*
		21 and above	-9.311	0.00*
	11-15	1-5	13.290	0.00*
		6-10	4.363	0.01*
		16-20	-1.754	0.864
		21 and above	-4.948	0.133
16-20	1-5	15.044	0.00*	
	6-10	6.117	0.004*	
	11-15	1.754	0.864	
	21 and above	-3.194	0.665	
21 years and above	1-5	18.239	0.00*	
	6-10	9.311	0.00*	
	11-15	4.948	0.133	
	16-20	3.194	0.665	

When the football players participating in the research are evaluated according to their years of licensed football playing; It was observed that there was a significant difference ($p < 0.05$). In all sub-dimensions of tactical skills in sports and the total TACSIS score compared to the scores of athletes who played football for 1-5 years and all other groups who played football for more years.

Table 6. Relationships between tactical skills and excellent performance levels in female football players

Variables		PDM	HKBM	KYO	ACS	TACSIS
HKBM	P	.849*				
	r	.000				
	N	235				
KYO	P	.818*	.795*			
	r	.000	.000			
	N	235	235			
ACS	P	.748*	.704*	.755*		
	r	.000	.000	.000		
	N	235	235	235		
TACSIS	P	.957*	.910*	.917*	.859*	
	r	.000	.000	.000	.000	
	N	235	235	235	235	
PPS-S	P	.072	.057	.027	.003	.049
	r	.272	.385	.685	.968	.453
	N	235	235	235	235	235

*p<0.05

When the relationships between tactical skills and excellent performance levels in female football players are examined; it is seen that all sub-dimensions of tactical skills used by football players are in significant relationship with each other ($p<0.05$). There was no relationship between tactical skills and excellent performance levels ($p>0.05$).

Table 7. Relationships between tactical skills and excellent performance levels in male football players

Variables		PDM	HKBM	KYO	ACS	TACSIS
HKBM	P	.793*				
	r	.000				
	N	671				
KYO	P	.773*	.724*			
	r	.000	.000			
	N	671	671			
ACS	P	.628*	.580*	.696*		
	r	.000	.000	.000		
	N	671	671	671		
TACSIS	P	.939*	.868*	.900*	.800*	
	r	.000	.000	.000	.000	
	N	671	671	671	671	
PPS-S	P	.018	-.014	.032	-.054	.001
	r	.643	.721	.413	.160	.989
	N	671	671	671	671	671

*p<0.05

When the relationships between tactical skills and excellent performance levels in male football players are examined; It is seen that all sub-dimensions of tactical skills used by football players are in significant relationship with each other ($p<0.05$). There was no relationship between tactical skills and excellent performance levels ($p>0.05$).

DISCUSSION AND CONCLUSION

This study was carried out to determine the tactical skills used by amateur and professional league football players and their excellent performance levels and to examine the relationships between these variables. There are significant differences between athletes playing football in different years in terms of the duration of active licensed football players.

In the research, it is seen that there is a significant difference between male and female football players in terms of tactical skills sub-dimensions and total scores in sports, and that men have higher scores than women in terms of perfect performance scores. In terms of years of licensed football playing; It was found that there was a significant difference in all sub-dimensions of tactical skills in sports and the total PPS-S score between the scores of athletes who played football for 1-5 years and all other groups who played football for more years. All sub-dimensions of tactical skills used by male and female football players have a significant relationship with each other; It was concluded that there was no relationship between tactical skills and excellent performance levels.

Müniroğlu et al. (15) examined professional football players' views on "Tactics in Football"; while 58% of football players say they completely agree with the statement "Tactics are very important in winning a match", 42% tend to agree. According to this result; Football players stated that they attach importance to tactics and that they think that tactical understanding is an important factor in achieving success. As a result, it has been revealed that the football players care about tactics and think that tactics have a very effective importance in winning the match.

González-Víllora et al. (8) in their study on "Review of tactical evaluation tools for young players in football and evaluation of tactics in team sports"; by compiling the studies conducted in the last 20 years, they stated that teaching-learning processes that are more tactically focused in younger age groups are much more beneficial for the tactical development of children.

In the study conducted by Low et al. (13) on tactical skills in football players; they emphasize that playing with a high-pressure game strategy against deep defense in football players of different ages and at different levels can lead to lower distance traveled on the physically and physiologically effective playing field, lower player speed and lower heart rates, as well as the tactical skills of the football players.

In the study by Figueira et al. (5), in which they aimed to determine the effects of playing football with different age groups on physical and tactical performance, they stated that young football players playing in different age groups developed positively both physically and technically when they trained and competed with different age groups. Forsman et al. (6) in their study on the effect of perception competence on the development of tactical skills, technical skills, motivation, speed and agility in young football players, they stated that there is a positive relationship between the levels and changes in perceived competence and motivation. and the perceived competence and speed and agility levels.

Rechenchosky et al. (19) in their study examining the tactical efficiency of football players playing in different positions, found that young attacking players were less able to apply the principle of "depth mobility" compared to "going inside", "offensive coverage", "width and length" and "attacking unity". They stated that they were efficient, and regarding the defensive aspects, they stated that they achieved "concentration" more efficiently than other principles. In the study by Popovych et al. (17) where they examined the basic characteristics of football players' tactical thinking types, they found that the tactical thinking levels of offensive players were higher than other players. It has been observed that defensive players have less predictability and analytical thinking than offensive players and goalkeepers. In the study conducted by Praça et al. (18), they stated that football players with higher tactical skills revealed significantly higher density and total connection values, and there were also differences in the frequency of defensive tactical principles. Silva et al. (21) stated in their study that national level players are more sensitive to field changes, however, they exhibit more variability in small and medium fields than regional level players.

In our research, when looked at in terms of years of licensed football playing; It was found that there was a significant difference in all sub-dimensions of tactical skills in sports and TACSIS score between the scores of athletes who played football for 1-5 years and all other groups who played football for more years.

As a result, it seems that increasing the number of years of licensed football playing in amateur and professional league football players is very important in terms of tactical skills. From this point of view, it can be said that increasing the experience period of both male and female football players by trying to reduce the age of starting sports to earlier ages will make a significant contribution to tactical skills, which are very important for performance in football.

REFERENCES

1. Acar Ş. Futbolda antrenman başında yapılan sürekli koşular ile antrenman sonunda yapılan sürekli koşuların dayanıklılığa etkisi (Yüksek Lisans Tezi) İstanbul Gelişim Üniversitesi Sağlık Bilimleri Enstitüsü Antrenörlük Eğitimi Anabilim Dalı, İstanbul, 2016.
2. DüNDAR U. Antrenman teorisi, Ankara: Nobel Yayın Dağıtım, 2003.
3. Elferink-Gemser MT, Visscher C, Richart H, Lemmink KA. Development of the tactical skills inventory for sports. *Perceptual and Motor Skills*, 2004; 99(3): 883-895.
4. Esentaş M, Güzel P, Tez ÖY. Sporda Mükemmellik Ölçeği'nin (PPS-S) Çocuk ve Yetişkin Sporcular için Geçerlik ve Güvenirliğinin İncelenmesi: Kısa Form. *Ulusal Spor Bilimleri Dergisi*, 2020; 4(1): 18-34.
5. Figueira B, Gonçalves B, Masiulis N, Sampaio J. Exploring how playing football with different age groups affects tactical behaviour and physical performance. *Biology of sport*, 2018; 35(2):145-153.
6. Forsman H, Gråstén A, Blomqvist M, Davids K, Liukkonen J, Konttinen N. Development of perceived competence, tactical skills, motivation, technical skills and speed and agility in young soccer players. *Journal of sports sciences*, 2016; 34(14):1311-1318.
7. Garganta J. Trends of tactical performance analysis in team sports: bridging the gap between research, training and competition. *Revista Portuguesa de Ciências do desporto*, 2009; 9(1): 81-89.
8. González-Víllora S, Serra-Olivares J, Pastor-Vicedo JC, Da Costa IT. Review of the tactical evaluation tools for youth players, assessing the tactics in team sports: football. *SpringerPlus*, 2015; 4(1): 1-17.
9. Gréhaigne JF, Godbout P (1995). Tactical knowledge in team sports from a constructivist and cognitivist perspective. *Quest*, 47(4): 490-505.
10. Hill AP, Appleton PR, Mallinson SH. Development and initial validation of the Performance Perfectionism Scale for Sport (PPS-S). *Journal of Psychoeducational Assessment*, 2016; 34(7):653-669.
11. Karasar N. Bilimsel araştırma yöntemi. Ankara: Nobel Yayın Dağıtım, 2005.
12. Lohr BA, Scogin F. Effects of self-administered visuo-motor behavioral rehearsal on sport performance of collegiate athletes. *Journal of Sport Behavior*, 1998; 21(2), 206-218.
13. Low B, Boas GV, Meyer L, Lizaso E, Hoitz F, Leite N, Gonçalves B. Exploring the effects of deep-defending vs high-press on footballers' tactical behaviour, physical and physiological performance: A pilot study. *Motriz: Revista de Educação Física*, 2018; 24(2): 1-7.
14. Morales JCP, Greco PJ. A influência de diferentes metodologias de ensino-aprendizagem-treinamento no basquetebol sobre o nível de conhecimento tático processual. *Revista Brasileira de Educação Física e Esporte*, 2007; 21(4): 291-299.
15. Müniroğlu S, Yıldırım Y, Karakulak İ. Profesyonel futbolcuların "futbolda taktik" konusunda görüşlerinin incelenmesi. *Sportmetre Beden Eğitimi ve Spor Bilimleri Dergisi*, 2011; 9(3): 97-103.
16. Nitsch JR. Ecological approaches to sport activity: A commentary from an action-theoretical point of view. *International Journal of Sport Psychology*, 2009; 40(1): 152-176.
17. Popovych I, Shcherbak T, Kuzikova S, Blynova O, Nosov P, Zinchenko S. Operationalization of tactical thinking of football players by main game roles. *Journal of Physical Education and Sport*, 2021; 21(5): 2480-2491.
18. Praça G, Barbosa GF, Murta C, Da Glória Teles Bredt S, Barreira D, Chagas MH, Greco PJ. Influence of floaters and positional status on players' tactical, physical, and physiological responses in soccer small-sided games. *Human Movement*, 2020; 21(3):54-63.
19. Rechenchosky L, Borges PH, Menegass VM, De Oliveira Jaime M, Guilherme J, Teoldo I, Rinaldi W. Comparison of tactical principles efficiency among soccer players from different game positions. *Human Movement Special Issues*, 2017; 2017(5): 31-38.
20. Rein R, Memmert D. Big data and tactical analysis in elite soccer: future challenges and opportunities for sports science. *SpringerPlus*, 2016; 5(1): 1-13.
21. Silva P, Duarte R, Sampaio J, Aguiar P, Davids K, Araújo D, Garganta J. Field dimension and skill level constrain team tactical behaviours in small-sided and conditioned games in football. *Journal of sports sciences*, 2014; 32(20): 1888-1896.
22. Ünver D. Profesyonel futbolcularda aerobik dayanıklılık ve zihinsel dayanıklılık arasındaki ilişkinin incelenmesi. Adnan Menderes Üniversitesi Beden Eğitimi ve Spor Anabilim Dalı, Yayınlanmamış doktora tezi, Aydın, 2021.
23. Yarayan YE, Esentürk OK, İlhan EL. Sporda taktiksel beceriler envanteri'nin (STBE) Türkçe uyarlama çalışması. *International Journal of Sport Exercise and Training Sciences-IJSETS*, 2019; 5(3): 129-137.