



ORIGINAL SCIENTIFIC ARTICLE

INTEGRAL ASSESSMENT OF THE TECHNICAL AND TACTICAL ACTIVITY OF A HIGHLY QUALIFIED FOOTBALL TEAM

Viktor Kostiukevych^{1ABCDE}, Nataliia Lazarenko^{1ACDE}, Stanislav Konnov^{1BCDE},
Tetiana Vozniuk^{1BCDE}, Oksana Shynkaruk^{2BCDE}, Inna Asauliuk^{1BCDE}, Natalia
Shchepotina^{1BCDE}, Serhii Voitenko^{1BCDE} and Nataliia Svirshchuk^{1BCDE}

¹Vinnitsia Mykhailo Kotsiubynskyi State Pedagogical University

²National University of Ukraine on Physical Education and Sport

Authors' Contribution: A – Study design; B – Data collection; C – Statistical analysis; D – Manuscript Preparation; E – Funds Collection

Corresponding Author: Viktor Kostiukevych, E-mail: kostykevich.vik@gmail.com

Accepted for Publication: September 22, 2022

Published: November 30, 2022

DOI: 10.17309/tmfv.2022.3s.12

Abstract

The study purpose was to carry out a comparative analysis of special indicators of the integral assessment of the technical and tactical football activity of the national team of Ukraine and national teams of various European countries.

Materials and methods. The study included pedagogical observation and video recording of the competitive activity of highly qualified football players of the national team of Ukraine and national teams of European countries within the framework of the 2021 (2020) European Football Championship. In total, the Ukrainian team played 5 matches at the European Championship. The integral assessment reflects the quantitative (coefficients of intensity, mobility, aggressiveness) and qualitative (coefficients of effectiveness, efficiency of single combat, creativity) indicators of the technical and tactical activity of the football team.

Results. In the course of the European Football Championship, the average value of the integral assessment of the technical and tactical activity of the Ukrainian team was 5.34 ± 0.24 points, which was not statistically different ($p=0.875$) from the indicator of the rival national teams, i.e. 5.36 ± 0.31 points. In the national team of Ukraine, in relation to the European champion of the national team of Italy, lower indicators were observed not only for the integral assessment – by 1.09 points (16.6%), but also for almost all specific indicators: for intensity coefficient – by 0.36 points (26.9%), for mobility coefficient – by 0.49 points (21.6%), for aggressiveness coefficient – by 0.14 points (15.5%), for effectiveness coefficient – by 0.02 points (2.3%), for creativity coefficient – by 0.12 points (25.0%).

Conclusions. The developed integrated assessment of the technical and tactical activity of a football team comprises six special coefficients: intensity coefficient, mobility coefficient, aggressiveness coefficient, effectiveness coefficient, coefficient of efficiency of single combat, and creativity coefficient. The established values of the specific coefficients of the integral assessment of the technical and tactical activity of the national football team of Ukraine can be considered as models and be the basis for correcting the training and competition processes.

Keywords: highly qualified football teams, European Football Championship, integral assessment of the technical and tactical activity.

Introduction

Intensification of competition among teams of different levels prompts the conduct of a large amount of scientific research aimed towards identification of the most significant

factors that determine the achievement of high sports results both on the national and international football arena. Due to this, control and analysis constitute integral components of the management of training and competitive activities of athletes as they are carried for the purpose of determining the effectiveness of the implementation of pedagogical influences planned by the coach (Bompa, Haff, 2009; Gerhard, 2009). Only on the basis of indicators of competitive activity, optimal corrections are introduced into the training process

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of athletes (Doroshenko, 2014; Doroshenko et al., 2019; Kostiukevych, Shchepotina, Vozniuk, 2020).

In team sports and namely in football, control and analysis of competitive activity has specific features, which, first of all, is due to the large volume of competitive actions and the multi-vector nature of the technical and tactical skill of athletes (Solovey et al., 2020; Oliinyk et al., 2021; Bezmylov et al., 2022). Therefore, there arises a problem of comprehensive analysis of the competitive activity of athletes in these sports. The analysis of special scientific literature made it possible to establish that the problem of control and analysis of competitive activity was studied by scientists in volleyball (Doroshenko, 2013; Shchepotina, 2015; Oliinyk et al., 2021), basketball (Mitova, Sidorenko, 2015; Vozniuk et al., 2020; Doroshenko et al., 2020), handball (Tyshchenko et al., 2019; Solovey et al., 2020), football (Bangsbo, Peitersen, 2000; Sarmiento et al., 2014; Kostiukevych, Lazarenko, Shchepotina, Poseletska et al., 2019), field hockey (White, MacFarlane, 2015; Kostyukevich, Konnov, 2021; Kostiukevych, Lazarenko, Shchepotina, Vozniuk et al., 2021) and in other sports.

One should note that general principles of control of competitive activity in team sports were developed by Mitova with co-authors (2015, 2019, 2020). One of the scientific and methodical approaches to control and analysis of the competitive activity of athletes in team sports is the integral assessment of the technical and tactical activity of both players and teams (Shchepotina, 2015; Vozniuk et al., 2020; Konnov, 2021). As for the determination of the integral assessment of the technical and tactical activity of athletes of team sports, the subject of scientific research of this problem was the research conducted by M. Bezmylov (2015), S. Konnov (2021), V. Kostiukevych with co-authors (2020, 2021).

Thus, taking into account the importance of determining the indicators that characterize the specificity and versatility of the game, reflect the quantitative and qualitative indicators of the technical and tactical activity of the players, the problem of analyzing the competitive activity of highly qualified athletes in football on the basis of an integral assessment, including in the overall team aspect, remains relevant.

Research hypothesis: it was assumed that the analysis of special indicators of the integral assessment of the technical and tactical activity of the national team of Ukraine and the national teams of various European countries will allow to determine the direction for correction of the training process of highly qualified football teams and will create prerequisites for effective management of training of players.

The purpose of the research was to carry out a comparative analysis of special indicators of the integral assessment of the technical and tactical football activity of the national team of Ukraine and the national teams of various European countries.

Material and methodology

Participants

The study included pedagogical observation and video recording of the competitive activity of highly qualified football players of the national team of Ukraine and national teams of European countries within the framework of the 2021 (2020) European Football Championship. In total, the Ukrainian team at the European Championship played

5 matches against the teams of the Netherlands (2:3), North Macedonia (2:1), Austria (0:1), England (0:4), Sweden (2:1). Such results allowed the Ukrainian team to become of the eight best teams in Europe. The study was approved by the ethics committee of Vinnytsia Mykhailo Kotsiubynskyi State Pedagogical University and all procedures were in compliance with the Declaration of Helsinki.

Research organization

The study was conducted during the 2021 (2020) European Football Championship. The competitive activity of the national team of Ukraine and national teams of various European countries was analyzed based on the methodical approach of V.M. Kostiukevych (Kostiukevych, Shchepotina, Shynkaruk et al., 2020; Kostiukevych, Lazarenko, Shchepotina, Vozniuk et al., 2021). According to the outlined approach, in the process of pedagogical observation of filmed video materials of football matches, all technical and tactical actions (TTA) of the players were recorded on specially developed forms while taking into account the coordination complexity. In particular, the 1st mode of coordination complexity (MCC) included TTA performed on the spot or at a convenient speed of movement. TTA performed on the move with a limitation in space and time belonged to the 2nd MCC. Execution of TTA in conditions of active interference by the opponent (single combat) were registered as TTA of the 3rd MCC.

In addition, ball passes were regarded as holding, developing and aggravating ones. That is, they characterized the football team's tactical moves – possession of the ball, development of the attack, escalation of offensive actions.

The integral assessment reflects the quantitative and qualitative indicators of the technical and tactical activity of the football team, and the method of its determination is presented in detail in previous studies (Kostiukevych, Shchepotina, Shynkaruk et al., 2020; Kostiukevych, Lazarenko, Shchepotina, Vozniuk et al., 2021; Shchepotina et al., 2021). And namely, quantitative specific indicators: intensity coefficient (IC) reflects the active TTA of the team during the match; mobility coefficient (MC) characterizes the dynamics of the team's game, the tempo of the game; aggressiveness coefficient (AC) is an indicator of the team's participation in single combat, as well as final offensive actions. Qualitative specific indicators: effectiveness coefficient (EC) is an indicator of the effectiveness of all TTA of the team during the match (half); coefficient of efficiency of single combat (CESC) reflects the effectiveness of team players' participation in martial arts; creativity coefficient (CC) determines the level of creative TTA of the team (fig. 1).

Statistical analysis

Descriptive statistics were used for mathematical processing of research results. Indicators characterizing the sample of objects were determined – mean value (M), standard deviation (SD), coefficient of variation (V, %). The parametric Student's t-test was used to determine the statistical reliability of the difference between the studied indicators of football teams. The difference between indicators was considered reliable at the significance levels $p < 0.05$ and $p < 0.01$. The sample was previously checked for normal distribution

$$1. \text{ The intensity coefficient (IC): } IC = \frac{\sum_{i=1}^n TTA}{t}, (1)$$

where: $\sum_{i=1}^n TTA$ – total amount of technical and tactical actions;

$$2. \text{ The mobility coefficient (MC): } MC = \frac{\sum_{i=1}^n TTA(2nd \text{ MCC} + 3rd \text{ MCC})}{t} \times 2, (2)$$

where: $\sum_{i=1}^n TTA(2nd \text{ MCC} + 3rd \text{ MCC})$ – total amount of technical and tactical actions performed by players in the second and third modes of coordination complexity;

2 – indicator of coordination complexity.

$$3. \text{ The aggressiveness coefficient (AC): } AC = \frac{\sum_{i=1}^n TTA(3rd \text{ MCC})}{t} \times 3, (3)$$

where: $\sum_{i=1}^n TTA(3rd \text{ MCC})$ – total amount of technical and tactical actions performed by players in the third mode of coordination complexity;

3 – indicator of coordination complexity.

$$4. \text{ The effectiveness coefficient (EC): } EC = \frac{\sum_{i=1}^n preciseTTA}{\sum_{i=1}^n allTTA}, (4)$$

where: $\sum_{i=1}^n preciseTTA$ – total amount of precise technical and tactical actions performed by players;

$\sum_{i=1}^n allTTA$ – total amount of all technical and tactical actions performed by players.

5. The coefficient of efficiency of single combat (CESC):

$$CESC = \frac{\sum_{i=1}^n preciseTTA(stops, holds, tackings, dummies, performed in 3rd \text{ MCC})}{\sum_{i=1}^n allTTA(stops, holds, tackings, dummies, performed in 3rd \text{ MCC})}, (5)$$

where: $\sum_{i=1}^n preciseTTA(stops, holds, tackings, dummies, performed in 3rd \text{ MCC})$ – total amount of precise technical and tactical actions performed by players in the third mode of coordination complexity;

$\sum_{i=1}^n allTTA(stops, holds, tackings, dummies, performed in 3rd \text{ MCC})$ – total amount of all technical and tactical actions performed by players in the third mode of coordination complexity.

6. The creativity coefficient (CC):

$$CC = \frac{\sum_{i=1}^n preciseTTA(DP \times 1 + SP \times 2 + GP \times 5 + GK \times 5 + G \times 10)}{t}, (6)$$

where: DP – developing passes; SP – sharpening passes; GP – goal passes; GK – goal kicks; G – goals.

7. The integral assessment (IA) was determined by the sum of six specific indicators and was one of the criteria for creating an athletes' rating: $IA = IC + MC + AC + EC + CESC + CC$ (7)

Development of protocols for pedagogical observation of the competitive activity of players was carried out on the basis of mathematical statistics.

Fig. 1 Qualitative specific indicators: effectiveness coefficient (EC) is an indicator of the effectiveness of all TTA of the team during the match (half); coefficient of efficiency of single combat (CESC) reflects the effectiveness of team players' participation in martial arts; creativity coefficient (CC) determines the level of creative TTA of the team

of results using the Shapiro-Wilk test. Mathematical processing of the research results was carried out using the "Data Analysis" package of the MS Office Excel software as well as using the Statistica program (Albert et al., 2017; Lopatiev et al., 2017; Byshevets, Denysova et al., 2019; Kostiukevych, Shchepotina, Shynkaruk et al., 2020).

Results

In order to achieve the goal of the study, the indicators of the technical and tactical activity of the national team of Ukraine were determined and they were compared with the TTA indicators of other national teams at the 2021 (2020) European Football Championship.

The indicators and structure of the technical and tactical activity of the Ukrainian team at the 2020 (2021) European Football Championship are presented in the table 1.

The indicators of the technical and tactical activity of the national football team of Ukraine can be considered as a model for a high level of competition. In general, during the European Championship, the national team of Ukraine performed ($M \pm SD$) 901.0 ± 60.94 TTA with a coefficient of variation of 6.8 %.

A fairly low coefficient of variation fully characterizes the stable level of skill of the players of the national team of Ukraine. This is also evidenced by the performance indicator of TTA by the Ukrainian team – 0.85 ± 0.02 with a coefficient of variation of 2.5 %.

From the table 1, it can be seen that the greatest efficiency is observed when performing such technical techniques as stopping and holding passes of the ball in the 1st MCC – 1.0, dribbling the ball – 0.99 ± 0.02 , holding passes of the ball in the 2nd MCC – 0.99 ± 0.01 , developing passes of the ball in the 1st MCC – 0.96 ± 0.03 .

Table 1. Indicators and structure of technical and tactical actions of the national team of Ukraine at the 2020 (2021) European Football Championship (n=5)

Technical and tactical actions		Indicators										Distribution, % (quantity)	
		Quantity					Quality						
		M	SD	max	min	V, %	M	SD	max	min	V, %		
Stops	1 MCC	34.0	21.4	63	13	63.1	1.0	–	–	–	–	13.4	22.2 (254.2)
	2 MCC	180.0	35.19	222	140	19.6	0.99	0.01	0.99	0.98	0.43	70.8	
	3 MCC	40.2	0.75	56	32	1.8	0.74	0.09	0.84	0.63	12.2	15.8	
Ball passes	holding 1 MCC	19.0	12.01	35	7	63.2	1.0	–	–	–	–	16.8	113.0
	2 MCC	84.6	29.61	124	55	35.0	0.99	0.01	1.00	0.98	0.9	74.9	
	3 MCC	9.4	3.86	14	5	41.1	0.88	0.09	1.00	0.80	9.8	8.3	
	developing 1 MCC	35.8	15.87	55	18	44.4	0.96	0.03	1.00	0.92	0.1	13.3	44,8 (403.8)
	2 MCC	21.4	21.33	242	193	9.9	0.87	0.04	0.91	0.82	4.4	78.6	
	3 MCC	21.6	16.31	48	10	75.5	0.64	0.26	1.00	0.39	40.9	8.1	
	aggravating 1 MCC	4.0	2.57	7	1	64.4	0.69	0.26	1.00	0.40	37.3	18.2	(22.0)
	2 MCC	15.8	5.57	22	9	35.3	0.50	0.13	0.68	0.37	26.6	71.8	
	3 MCC	2.2	1.72	4	1	78.0	0.56	0.26	1.00	0.33	51.3	10.0	
Leading the ball		48.6	1.29	52	45	2.6	0.99	0.02	1.00	0.96	1.7	5.4	
Dribbling the ball		43.2	7.72	51	33	17.8	0.78	0.08	0.89	0.69	11.0	4.8	
Tackling the ball		66.2	15.88	82	45	23.9	0.46	0.04	0.51	0.42	8.4	7.5	
Interception	1 MCC	1.00	–	–	–	–	1.00	–	–	–	–	1.3	8.6 (77.4)
	2 MCC	42.8	4.72	55	34	11.0	0.70	0.03	0.89	0.83	3.6	55.3	
	3 MCC	33.6	11.59	48	21	34.4	0.52	0.17	0.69	0.29	33.0	43.4	
Shots on goal	From the game	64	3.43	10	2	53.6	0.54	0.28	1.00	0.33	53.2	84.2	0.7 (7.6)
	SP	1.2	–	–	–	–	0.60	–	–	–	–	15.8	
Number of TTA		901.0	60.94	951	809	68	0.85	0.02	0.88	0.83	2.5		
Single combat		218.2	45.49	273	167	20.8	0.57	0.04	0.65	0.55	75.5	24.2	
EC		–	–	–	–	0.85	0.02	0.88	0.83	0.83	2.5		
Specific indicators	IC	0.98	0.07	1.06	0.89	7.1							
	MC	1.78	0.13	1.90	1.59	7.3							
	AC	0.76	0.15	0.91	0.56	19.7							
	EC						0.85	0.02	0.88	0.83	2.5		
	CESC						0.61	0.04	0.65	0.55	6.6		
	CC						0.36	0.05	0.41	0.29	13.8		
	IA	5.34	0.24	5.60	5.03	4.2							

Notes: MCC – mode of coordination complexity; SP – standard provisions; TTA – technical and tactical actions; IC – intensity coefficient; MC – mobility coefficient; AC – aggressiveness coefficient; EC – effectiveness coefficient; CESC – coefficient of efficiency of single combat; CC – creativity coefficient; IA – integral assessment

Table 2. Indicators of integral assessment of technical and tactical activity (in one half) of the national team of Ukraine (n=10) and rival teams (n=10) at the 2021 (2020) European Football Championship

Specific indicators of technical and tactical activity	National team of Ukraine		National teams of Europe		ΔM (%)	t	p
	M	SD	M	SD			
Intensity coefficient, points	0.98	0.07	1.04	0.08	0.06 (5.8)	1.79	0.089
Mobility coefficient, points	1.78	0.13	1.74	0.32	0.04 (2.3)	0.36	0.722
Aggressiveness coefficient, points	0.76	0.15	0.55	0.16	0.21 (38.2)	3.03	0.007*
Effectiveness coefficient, points	0.85	0.02	0.91	0.03	0.06 (6.6)	9.00	0.000*
Coefficient of efficiency of single combat, points	0.61	0.04	0.74	0.03	0.13 (17.6)	8.22	0.000*
Creativity coefficient, points	0.36	0.05	0.38	0.04	0.02 (5.3)	1.00	0.329
Integral assessment, points	5.34	0.24	5.36	0.31	0.02 (0.4)	0.16	0.875

Notes: * – statistically significant difference at the level of significance $p < 0.01$

The lowest performance indicators of TTA were registered when hitting the goal from the game, i.e. 0.54 ± 0.28 , and from standard positions, i.e. 0.60, as well as when taking the ball, i.e. 0.46 ± 0.04 and aggravating passes of the ball in the 2nd MCC, i.e. 0.50 ± 0.13 , and in the 3rd MCC, i.e. 0.56 ± 0.26 .

The average value of the integral assessment (IA) of the national team of Ukraine at the 2020 (2021) European Football Championship was 5.34 ± 0.24 points. The structure of the integral assessment of the technical and tactical activity of the national team of Ukraine is presented in fig. 1. The highest values in the structure of the integral assessment of the TTA of the Ukrainian team were for MC – 33.5 % and IC – 19.0 %, the lowest – for CC – 6.6 %.

One of the tasks of the study was to compare the indicators of the integral assessment of the national team of Ukraine and rival teams (Table 2).

In the course of the European Football Championship, the average value of the IA TTA of the Ukrainian team was 5.34 ± 0.24 points, which was statistically not different ($p = 0.875$) from the average value of the IA of the TTA of the rival national teams, i.e. 5.36 ± 0.31 points.

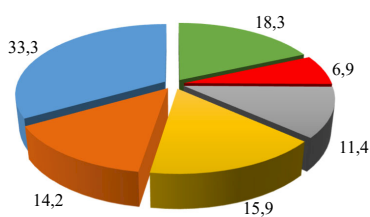


Fig. 1. The structure of the integral assessment of the technical and tactical activity of the national team of Ukraine at the 2021 (2020) European Football Championship, % was the following: ■ – intensity coefficient; ■ – mobility coefficient; ■ – aggressiveness coefficient; ■ – effectiveness coefficient; ■ – coefficient of efficiency of single combat; ■ – creativity coefficient

In the course of the European Football Championship, the average value of the IA of the TTA of the Ukrainian team was 5.34 ± 0.24 points, which was statistically not different ($p = 0.875$) from the average value of the IA of the TTA of the rival national teams, i.e. 5.36 ± 0.31 points.

It is always important to compare the values obtained in the study with the corresponding values of the champion. The national football team of Italy became the 2021 (2020) European football champion.

Table 3 represents the indicators of the IA of the TTA of the national team of Ukraine and the national team of Italy.

The national team of Italy has greater values not only for the integral assessment of the TTA by 1.09 points (16.6 %), but also for almost all specific indicators of the integral assessment. In particular, in the national team of Ukraine, in relation to the European champion of the national team of Italy, lower indicators are observed for IC – by 0.36 points (26.9 %), for MC – by 0.49 points (21.6 %), for AC – by 0.14 points (15.5 %), for EC – by 0.02 points (2.3 %), for CC – by 0.12 points (25.0 %). That is, in order for the national football team of Ukraine to reach the finals of the European

Table 3. Indicators of the integral assessment of the technical and tactical activity of the national team of Ukraine (average values) and the national team of Italy (final match) at the 2021 (2020) European Football Championship

National teams	Specific coefficients						
	IC	MC	AC	EC	CESC	CC	IA
Ukraine (n=5)	0.98	1.78	0.76	0.85	0.61	0.36	5.34
Italy	1.34	2.27	0.90	0.87	0.57	0.48	6.43

Notes: IC – intensity coefficient; MC – mobility coefficient; AC – aggressiveness coefficient; EC – effectiveness coefficient; CESC – coefficient of efficiency of single combat; CC – creativity coefficient; IA – integral assessment

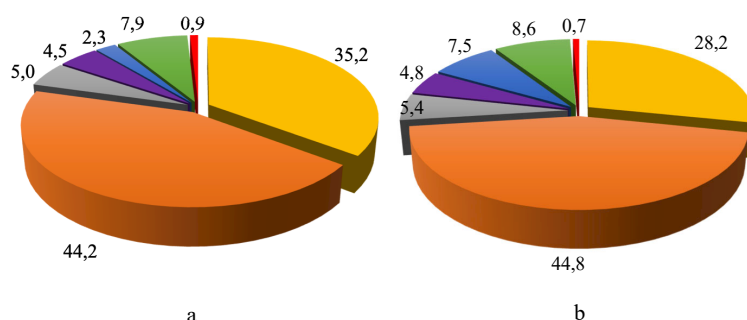


Fig. 2. The structure of the technical and tactical activity of the European national football teams: a – the Italian national team, b – the national team of Ukraine, %: ■ – stops; ■ – passes; ■ – leading; ■ – dribbling; ■ – tackles; ■ – interception; ■ – shots on goal

Championship, it is necessary to fully focus on the meaning of the IA of the TTA of the Italian national team.

If we consider the structure of the technical and tactical activity of the national teams of Italy (Fig. 2 a) and Ukraine (Fig. 2 b), then the advantage of the Italian national team over the national team of Ukraine in the execution of TTA which are performed in the ball possession phase is observed. In the Italian national team, passes, stops, leads, dribbles and shots on goal were 88.9 %. In the national team of Ukraine, these TTAs amounted to 84.0 %. Therefore, the game of the national team of Ukraine should be aimed at greater control of the ball.

It can be noted that focusing on the indicators of the Italian national team in one game cannot reflect the objective nature of the analysis.

Discussion

Summarizing the results of previous studies allows us to note that team management in competitive sports is one of the most difficult problems of coaching (Doroshenko, 2013; Mitova, Sidorenko, 2015; Tyshchenko et al., 2019). This is largely determined by the objective difficulties of operational control. At the same time, urgent objective information about the quantitative and qualitative characteristics of the players' competitive activity creates prerequisites for effective operational management of a football team.

Discussion matters in this article concern selected methods of scientific research as well as interpretation of the obtained results.

As for the methods of study of the outlined problem, it is worth noting that the analysis of the competitive activity of athletes of team game sports and football, in particular, based on the integral assessment of technical and tactical activity, is one of the most objective. First of all, this is due to taking into account not only all technical and tactical actions (stops, passes, dribbling, passing, tackles, interceptions, shots on goal) performed in the game, but also their coordination complexity. That is, the performance of each technical and tactical action is registered in three modes of coordination complexity. This allows form making objective adjustments to the structure and content of the training pro-

cess of athletes. For example, the predominant performance of technical and tactical exercises in the third mode of coordination complexity, especially aimed at improving such game techniques as passing, interception as well as tackles contributes to increasing the level of sportsmanship of football players. All these game techniques belong to the group of single combats, and, as a rule, a greater number of single combats won by the opposing team allows to achieve a winning result (Doroshenko, 2014; Kostiukevych, Shchepotina, Vozniuk, 2020).

The method of integral assessment of the competitive activity of athletes in team game sports was reflected in the results of previous studies and was tested in the practice of training teams in basketball (Vozniuk et al., 2020), volleyball (Shchepotina, 2015), field hockey (Konnov, 2021), mini-football (Leibo et al., 2021), where its objectivity was confirmed.

The disadvantage of this method of analyzing the competitive activity of football teams is the calculation of indicators of the motor activity of the players (Kostiukevych, Lazarenko, Shchepotina, Vozniuk et al., 2021). This is possible when using such specialized programs for monitoring competitive activity in sports games as Sports Code, GAME BREAKER Plus, Sports Code PRO, Sports Code ELITE, etc.

As for the interpretation of the obtained results, in general, in accordance with the formulated hypothesis of the study, it was assumed that the definition of an integral assessment of technical and tactical activity will allow to outline the directions of correction of the training process of highly qualified football teams.

The integral assessment reflects the technical and tactical preparedness of the players, therefore, the higher its value, the higher the team's sporting result can be. According to the indicator of the integral assessment of technical and tactical activity, the game of the national team of Ukraine corresponded to the development trends of European football (Bangsbo, Peitersen, 2000; Doroshenko, 2014). The greater value of the coefficient of aggressiveness of the national team of Ukraine in relation to rival teams can be viewed from a positive point of view. The negative difference between the values of the coefficient of effectiveness and the coefficient of efficiency of single combat determines the directions of

training work which should be aimed at increasing the level of performance of technical and tactical actions by the players of the national team of Ukraine.

Focus on the champion can be considered as a guide in the indicators of technical and tactical activity of national teams (Doroshenko et al., 2019; Solovey, Mitova, Solovey et al., 2020; Kostiukevych, Shchepotina, Vozniuk, 2020), including the national football team of Ukraine. There is an advantage of the 2021 (2020) European champion of the national team of Italy over the national team of Ukraine when performing technical and tactical actions performed in the ball possession phase. Therefore, the game of the national team of Ukraine should be aimed at greater control of the ball.

In general, the conducted study expanded the methodological approaches to the control of the competitive activity of athletes in team game sports (Doroshenko, 2013; Shchepotina, 2015; Oliinyk et al., 2021), including on the basis of an integral assessment of their technical and tactical activity (Vozniuk et al., 2020; Konnov, 2021; Kostiukevych, Lazarenko, Shchepotina, Vozniuk et al., 2021).

Conclusions

1. Control and analysis of competitive activity is a key link in the general system of training athletes. There is an integral assessment of technical and tactical activity for objective control of the competitive activity of athletes in team game sports.

2. The developed integrated assessment of technical and tactical activity consists of six special coefficients – intensity coefficient, mobility coefficient, aggressiveness coefficient, efficiency coefficient, coefficient of efficiency of single combat, creativity coefficient. Each of these coefficients reflects the main aspects of the football team's game.

3. The following indicators of the integral assessment of the technical and tactical activity of the national team of Ukraine at the 2021 (2020) European Football Championship were determined: intensity coefficient - 0.98 ± 0.07 points; mobility coefficient - 1.78 ± 0.13 points; aggressiveness coefficient - 0.76 ± 0.15 points; efficiency coefficient - 0.85 ± 0.02 points; coefficient of efficiency of single combat - 0.61 ± 0.04 points; creativity coefficient - 0.36 ± 0.05 points; integrated assessment - 5.34 ± 0.24 points. The established values of the specific coefficients of the integral assessment of the technical and tactical activity of the national football team of Ukraine can be considered as models and be the basis for correcting the training and competition processes.

The perspective of further studies of the specified problem will be determined by the development of models of technical and tactical activity of highly qualified football players of various playing roles based on an integral assessment of technical and tactical activity.

Acknowledgements

The research was carried out within the framework of the plan of the research work of the Department of Theory and Methodology of Sports of Vinnytsia Mykhailo Kotsiubynskyi State Pedagogical University for 2016-2020 "Theoretical and Methodological Foundations of Programming and Modeling of the Training Process of Sportsmen of Different Quali-

fications" (state registration number 0116U005299) and for 2021-2025 "Organizational and methodological principles of programming the training process of gratified and highly gratified athletes" (state registration number 0121U109550).

Conflict of interests

The authors state that there is no conflict of interests.

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ІНТЕГРАЛЬНА ОЦІНКА ТЕХНІКО-ТАКТИЧНОЇ ДІЯЛЬНОСТІ ФУТБОЛЬНОЇ КОМАНДИ ВИСОКОЇ КВАЛІФІКАЦІЇ

Віктор Костюкевич^{1ABCDE}, Наталія Лазаренко^{1ACDE}, Станіслав Коннов^{1BCDE},
Тетяна Вознюк^{1BCDE}, Оксана Шинкарук^{2BCDE}, Інна Асаулюк^{1BCDE}, Наталя
Щепотіна^{1BCDE}, Сергій Войтенко^{1BCDE}, Наталія Свіршчук^{1BCDE}

¹Вінницький державний педагогічний університет імені Михайла Коцюбинського

²Національний університет фізичного виховання і спорту України

Реферат. Стаття: 9 с., 3 табл., 3 рис., 31 джерело.

Мета дослідження – здійснити порівняльний аналіз спеціальних показників інтегральної оцінки техніко-тактичної діяльності з футболу національної збірної команди України та національних збірних команд різних європейських країн.

Матеріал і методи. Дослідження передбачало педагогічне спостереження та відеозйомку змагальної діяльності футболістів високої кваліфікації національної збірної команди України та національних збірних команд європейських країн у рамках Чемпіонату Європи з футболу 2021 (2020) року. Усього команда України на чемпіонаті Європи провела 5 матчів. Інтегральна оцінка відображає кількісні (коефіцієнти інтенсивності, мобільності, агресивності) та якісні (коефіцієнти ефективності, ефективності однокористувачів, креативності) показники техніко-тактичної діяльності футбольної команди.

Результати. У процесі чемпіонату Європи з футболу середнє значення інтегральної оцінки техніко-тактичної діяльності команди України було $5,34 \pm 0,24$ бали, що статистично не відрізнялося ($p=0,875$) від показника збірних команд-суперників – $5,36 \pm 0,31$ бали. У збірній команді України по відношенню до чемпіона Європи збірної команди Італії спостерігаються нижчі показники не лише за загальною інтегральною оцінкою на 1,09 бала (16,6 %), а також майже за всіма специфічними показниками: за коефіцієнтом інтенсивності – на 0,36 бали (26,9 %), за коефіцієнтом мобільності – на 0,49 бали (21,6 %), за коефіцієнтом агресивності – на 0,14 бали (15,5 %), за коефіцієнтом ефективності – на 0,02 бали (2,3 %), за коефіцієнтом креативності – на 0,12 бали (25,0 %).

Висновки. Розроблена інтегральна оцінка техніко-тактичної діяльності футбольної команди складається з шести спеціальних коефіцієнтів – інтенсивності, мобільності, агресивності, ефективності, ефективності єдиноборств, креативності. Встановлені значення специфічних коефіцієнтів інтегральної оцінки техніко-тактичної діяльності національної збірної команди України з футболу можуть розглядатися як модельні і бути підґрунтям для корекції тренувального та змагального процесів.

Ключові слова: футбольні команди високої кваліфікації, чемпіонат Європи з футболу, інтегральна оцінка техніко-тактичної діяльності.

Information about the authors

Kostiukevych V.M.: kostykevich.vik@gmail.com; <http://orcid.org/0000-0002-9716-134X>; Department of Theory and Methodology of Sports, Vinnytsia Mykhailo Kotsiubynskyi State Pedagogical University, Ostrozhskyi St, 32, Vinnytsia, 21100, Ukraine.

Lazarenko N.I.: lazarenkonii@gmail.com; <http://orcid.org/0000-0002-3556-8849>; Department of Primary Education, Vinnytsia Mykhailo Kotsiubynskyi State Pedagogical University, Ostrozhskyi St, 32, Vinnytsia, 21100, Ukraine.

Konnov S.R.: konnovstas12345@gmail.com; <http://orcid.org/0000-0002-2166-1735>; Department of Theory and Methodology of Sports, Vinnytsia Mykhailo Kotsiubynskyi State Pedagogical University, Ostrozhskyi St, 32, Vinnytsia, 21100, Ukraine.

Vozniuk T.V.: TV_Vinnitsa@ukr.net; <http://orcid.org/0000-0002-5951-7333>; Department of Theory and Methodology of Sports, Vinnytsia Mykhailo Kotsiubynskyi State Pedagogical University, Ostrozhskyi St, 32, Vinnytsia, 21100, Ukraine.

Shynkaruk O.A.: shi-oksana@ukr.net; <http://orcid.org/0000-0002-1164-9054>; Department of Esports and Information Technologies, National University of Ukraine on Physical Education and Sport, Fizkultury St, 1, Kyiv, 03150, Ukraine.

Asauliuk I.O.: innaasauliuk@gmail.com; <http://orcid.org/0000-0001-8119-2726>; Department of Theory and Methodology of Physical Education, Vinnytsia Mykhailo Kotsiubynskyi State Pedagogical University, Ostrozhskyi St, 32, Vinnytsia, 21100, Ukraine.

Shchepotina N.Yu.: shchepa@mbox.vn.ua; <http://orcid.org/0000-0002-9507-3944>; Department of Theory and Methodology of Sports, Vinnytsia Mykhailo Kotsiubynskyi State Pedagogical University, Ostrozhskyi St, 32, Vinnytsia, 21100, Ukraine.

Voitenko S.M.: voytenkos@ukr.net; <http://orcid.org/0000-0003-0025-1064>; Department of Theory and Methodology of Sports, Vinnytsia Mykhailo Kotsiubynskyi State Pedagogical University, Ostrozhskyi St, 32, Vinnytsia, 21100, Ukraine.

Svirshchuk N.S.: svirshchuk83@gmail.com; <http://orcid.org/0000-0001-6997-1778>; Department of Theory and Methodology of Sports, Vinnytsia Mykhailo Kotsiubynskyi State Pedagogical University, Ostrozhskyi St, 32, Vinnytsia, 21100, Ukraine.

Cite this article as: Kostiukevych, V., Lazarenko, N., Konnov, S., Vozniuk, T., Shynkaruk, O., Asauliuk, I., Shchepotina, N., Voitenko, S., & Svirshchuk, N. (2022). Integral Assessment of the Technical and Tactical Activity of a Highly Qualified Football Team. *Physical Education Theory and Methodology*, 22(3s), S85-S93. <https://doi.org/10.17309/tmf.2022.3s.12>

Received: 21.07.2022. Accepted: 22.09.2022. Published: 30.11.2022

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