



Analysis of Factors of Sports Migration and the Effectiveness of Competitive Activity of Football Players

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Abstract

The purpose of the work: determine the ways of correcting the training process based on taking in to account the influence of sports migration factors on the training of highly qualified football players.

Material and methods. To assess the impact of factors of sports migration on the effectiveness of competitive activity, the indicators of the competitive activity of football players of the national team of Ukraine in 16 official games during the 2020-2021 and 2021-2022 seasons. Methods of research. Analysis, generalization and systematization of data from scientific and methodological literary sources and the "Internet", pedagogical observations, content analysis of competition regulations (based on the materials of the official FIFA; UEFA; UAF sites), analysis of performance indicators of competitive activity; method of expert evaluations; methods of mathematical statistics.

Results. The 2020-2021 season: in 62,5% of official games, higher indicators were recorded for football players of the first group ("migrants" and "naturalized" athletes), the range of indicators – from 58.33% to 77.50%. At the same time, statistically significant differences (25.00%) were recorded in 2 games. In one game, higher indicators were recorded for football players of the first group ("migrants" and "naturalized" athletes) and, in one game, higher indicators were recorded for football players of the second group (athletes who were born in Ukraine are national athletes of the UAF and participate in UPL competitions). The 2021-2022 season: in 62.5% of official games, higher indicators were recorded for football players of the first group ("migrants" and "naturalized" athletes), the range of indicators – from 50.01% to 74.16%. No statistically significant differences were recorded. The comparative effectiveness of football players of the first and second groups was 46.15% and 53.85%, respectively.

Conclusion. This state of affairs indicates the need to correct the modern system of multi-year improvement of highly qualified football players based on the development and formation of technologies for the direct training of migrant athletes for official international competitions.

Keywords: football, highly qualified athletes, sports migration, training, competitive activity.

Introduction

Modern football is one of the most popular sports in the world. As of today, the international football federation (FIFA) has 211 collective members (official website of the FIFA). Official international competitions at the level of club and national teams – World Championships, club continental competitions arouse considerable interest of the general population and leading mass media. This stimulates the processes of competition between football players and teams,

which is one of the leading factors in the development of football in the global dimension.

Foreign scientists have repeatedly turned to consideration of problematic issues related to the influence of migration processes on the system of training football players. In particular, widely known studies (Poli, 2019; Poli, Ravenel & Besson, 2019a; Poli, Ravenel & Besson, 2019b), which are aimed at studying the influence of global factors (including sports migration) on the development of football. Research (Elliot, 2014; 2017; 2019) relate to the study of the mental prerequisites of sports migration in relation to the issues of training football players. Scientific explorations (Lago-Peñas, S. Lago-Peñas & Lago, 2019; Lago-Peñas, 2020) devoted to

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the issue of the influence of sports migration processes on the effectiveness of the competitive activity of “elite” football teams, that is, highly qualified football players.

One of the first thorough studies of the management system of long-term training of football players in Ukraine are the scientific works of researchers (Lisenchuk & Tyshchenko, 2019a; Lisenchuk & Tyshchenko, 2019b; Lisenchuk & Tyshchenko, 2020), which reveal the methodology of managing the educational and training process and competitive activities of football players of various ages and qualifications; contain special tests, qualitative and quantitative criteria for evaluating the special physical and technical and tactical preparedness of football players; allow formulating practical recommendations for optimizing the management system at various stages of preparation.

Subsequently, the specified scientific investigations received a logical continuation in a monograph (Shamardin, 2012) regarding the improvement of the management technology of the multi-year training system of highly qualified football teams; scientific studies (Nikolaenko, Maksymchuk, Donets et al., 2021; Nikolaenko, Vorobiov, Chopilko et al., 2021) regarding the improvement of the system of long-term training of football players to achieve higher sportsmanship; scientific research (Kostiukevych, Imas, Borysova et al., 2018; Kostiukevych, Lazarenko, Shchepotina et al., 2019; Kostiukevych, Shchepotina & Vozniuk, 2020) regarding the application of modeling methods and model characteristics of football players readiness in the process of their long-term improvement; scientific studies (I. Doroshenko, Svatyev, Sobol et al., 2023; I. Doroshenko, Svatyev, Sobol E. et al., 2023) regarding the optimization of management of technical and tactical activities of qualified football players. The specified scientific works are based on the general theory of sports, the system of training athletes and the theory of periodization of long-term sports improvement (Bubka, Bulatova, Esentaev et al., 2017), which constitute the background and fundamental basis of the specified scientific direction.

In addition, scientific research on the use of training technologies for athletes of different age groups is important for improving the training management system and increasing the efficiency of the competitive activity of football players (Mulyk, & Kraynik, 2019).

Research (Lyzohub, Pustovalov, Grechukha & Shpanyuk, 2018; Lyzohub, Pustovalov, Suprunovich et al., 2021) concerns the topical issues of selecting highly qualified football players based on indicators of bioenergetic metabolism and assessment the effectiveness of the competitive activity of football players depending on the quantitative and qualitative characteristics of neurodynamic functions.

At the same time, in recent years, a new scientific direction has been formed in the theory of long-term training in sports games. These are scientific studies (Imas & Borisova, 2017) that relate to the impact of certain global factors, in particular, commercialization and professionalization on the development of the game sports system in Ukraine (on the material of tennis); scientific intelligence (Sushko & Doroshenko, 2019), which is aimed at studying the factors of the development of game sports (based on the material of basketball) in the conditions of the influence of global factors on sports of higher achievements. First of all, it concerns issues of sports migration, commercialization and politicization of

official competitions, professionalization and socialization of athletes, etc. The specified scientific direction was continued in research (Sobol, Svatyev, Doroshenko et al., 2021; Sobol, Svatyev & Doroshenko et al., 2021a; Sobol, Svatyev & Doroshenko et al., 2021b; Sobol, 2022), which raise a wide range of problematic issues regarding the financial prerequisites for sports migration of highly qualified football players; compliance of the activities of professional football clubs with the criteria of financial “Fair Play”, the formation of innovative technologies for the training of highly qualified football players, taking into account the factors of sports migration. From this point of view, the relevant issues of taking in to account the level of quantitative and qualitative characteristics of the level of competitive practice of football players, the individualization of their direct preparation for official national and international competitions, the determination of the individual contribution of migrant football players to the overall team result, etc., are significant. The indicated directions indicate the need to correct the modern system of managing the long-term training of qualified athletes – on the one hand, the issue of sports migration requires the use of fundamentally different methodological approaches and technologies for improving the training process, on the other hand, the issue of improving football players who are pupils of national football schools is becoming more significant or the Academy.

At the present time, the mentioned problems have received initial development in the works of foreign and domestic scientists, but a number of fundamental questions regarding the regulatory norms of official competitions in the context of determining the rational ratio of migrant football players and national athletes in competitive activities, compliance by professional football clubs with the criteria of financial “Fair Play”, implementation of norms of national legislation to international criteria of “naturalization” of athletes, etc.

Hypothesis. The study of the influence of the factors of sports migration and their use in the training process will contribute to increasing the efficiency of the competitive activity of highly qualified football players.

The purpose of the work: determine the ways of correcting the training process based on taking in to account the influence of sports migration factors on the training of highly qualified football players.

Material and Methods

Study Participants

To assess the impact of factors of sports migration on the effectiveness of competitive activity, the indicators of the competitive activity of football players of the national team of Ukraine in 16 official games were used: 8 official games of the 2020-2021 season: group “D” of the UEFA qualification for the final tournament of the 2022 FIFA World Cup) and 8 official games of the 2021-2022 season (2 games of the play-off qualifying round for the 2022 FIFA World Cup final tournament and 6 UEFA Nations League B games of the 2022-2023 season). A total of 176 football players of the national team of Ukraine were analyzed during the 2020-2021 and 2021-2022 seasons.

Organization of the Study

Experimental research was carried out in coordination with experts of the Scientific-Methodological Council and Coach Licensing Center of the Ukrainian Football Association and members of the complex scientific group of the national football team of Ukraine. Materials from official websites were also used regarding the determination of indicators of sports migration in the starting lineups of the national team of Ukraine in the specified official matches (official website of the FIFA; official website of the UEFA; official website of the UAF).

Methods of Research

Analysis, generalization and systematization of data from scientific and methodological literary sources and the "Internet", pedagogical observations, content analysis of competition regulations (based on the materials of the official FIFA; UEFA; UAF sites), analysis of performance indicators of competitive activity; method of expert evaluations; methods of mathematical statistics.

Statistical Analysis

During the experimental study, the following calculated indicators were determined using mathematical statistics methods: arithmetic mean, percentage value, efficiency of competitive activity (according to the indicator of expert evaluations, ECA, formula 1), indicator of sports migration (ISM, formula 2).

$$ECA = \frac{e(n)\% \cdot 100\%}{n}, \quad (\text{formula 1})$$

ECA – efficiency of competitive activity, %; e – expert evaluation, %; n – number of experts;

$$ISM = \frac{m(n) \cdot 100\%}{11}, \quad (\text{formula 2})$$

ISM – indicator of sports migration, %; m(n) – number of migrant athletes in the team's starting lineup.

Results

In order to determine the impact of sports migration indicators on the effectiveness of the competitive activity of highly qualified football players – players of the national team of Ukraine in official matches of the 2020-2021, 2021-2022 seasons, indicators of the effectiveness of competitive activity and indicators of sports migration were determined (tables 1 and 2)

Based on the data in Table 1, we state that the effectiveness of the competitive activity of football players in the 2020-2021 season (before the introduction of the author's technology of direct preparation for competitions) was:

- number of wins, 2 out of 8 games (25%), draws – 6 out of 8 games (75%);
- ratio of scored and missed goals – 11:8 = 1,38; with an average performance per game – 1,38;
- number of points scored: 12 (on average per game – 1.5);
- the rate of migration in the starting lineups of teams in the range from 27.27% to 54.54% (the average rate of participation of "migrant" football players, and "naturalized" football players in the game is 38.63%).

Based on the data in Table 2, we state that the effectiveness of the competitive activity of football players in the 2021-2022 season (after the introduction of the author's technology of direct preparation of football players for competitions) was:

- number of wins, 4 out of 8 games (50%), with 2 draws (25%) and 2 losses (25%);

Table 1. Performance indicators of the competitive activity of football players in the 2020-2021 season, taking in to account the indicators of sports migration, n = 88

Official international competitions UEFA		Performance indicators of competitive activity and migration of football players		
date	national teams	score, points	ECA, %	ISM, %
24.03.21	France – Ukraine	1:1 (1:1)	77.50	-
			65.71	36.36
28.03.21	Ukraine – Finland	1:1 (1:1)	58.00	54.54
			59.38	-
31.03.21	Ukraine – Kazakhstan	1:1 (1:1)	62.50	45.45
			67.86	-
01.09.21	Kazakhstan – Ukraine	2:2 (1:1)	68.00	-
			63.38	45.45
04.09.21	Ukraine – France	1:1 (1:1)	66.25	27.27
			61.67	-
09.10.21	Finland – Ukraine	1:2 (0:3)	62.50	-
			62.08	27.27
12.10.21	Ukraine – B&H	1:1 (1:1)	60.50	27.27
			58.33	-
17.11.21	B&H – Ukraine	0:2 (0:3)	65.00	-
			70.63	45.45

Note: B&H – Bosnia and Herzegovina

Table 2. Performance indicators of the competitive activity of football players in the 2021-2022 season, taking in to account the indicators of sports migration, n = 88

Official international competitions UEFA		Performance indicators of competitive activity and migration of football players		
date	national teams	score, points	ECA, %	ISM, %
01.06.22	Scotland – Ukraine	1:3 (0:3)	74.16 72.22	– 45.45
05.06.22	Wales – Ukraine	1:0 (3:0)	67.50 66.00	– 45.45
08.06.22	Ireland – Ukraine	0:1 (0:3)	68.33 65.45	– 27.27
11.06.22	Ukraine – Armenia	3:0 (3:0)	71.50 70.00	27.27 –
14.06.22	Ukraine – Ireland	1:1 (1:1)	55.63 58.75	36.36 –
21.09.22	Scotland - Ukraine	3:0 (3:0)	50.01 50.84	– 36.36
24.09.22	Armenia – Ukraine	0:5 (0:3)	74.16 71.00	– 45.45
27.09.22	Ukraine – Scotland	0:0 (1:1)	57.50 57.00	63.63 –

- ratio of scored and missed goals – 13:6 = 2.17; with an average performance per game – 1.63;
- number of points scored: 14 (average per game – 1.75);
- the rate of migration in the starting list of teams in the range from 27.27 to 63.63% (the average rate of participation of “migrant” football players, and “naturalized” football players in the game is 40,91%).

In addition, a comparative pedagogical analysis of the indicators of the effectiveness of the competitive activity of football players of the national team of Ukraine was carried out with the differentiation of athletes into groups of football players, namely: the first group of football players who are “migrants” and “naturalized” athletes play in the Ukrainian Premier League (UPL); the second group of football players, who were born in Ukraine, are pupils of the UAF Youth Football Association and participate in UPL competitions.

Indicators of the effectiveness of the competitive activity of football players are determined by the method of expert evaluations with the involvement of specialists of the complex scientific group (CSG) of the national team of Ukraine, the Scientific- Methodological Council and Coach Licensing Center of UAF. On the basis of the obtained scientific results, we state that the performance indicators of the competitive activity of football players of the national team of Ukraine before 2020-2021 season and after the introduction of the original technology of direct training of football players for official competitions 2021-2022 season have the following dynamics:

- the 2020-2021 season: in 62,5% of official games, higher indicators were recorded for football players of the first group (“migrants” and “naturalized” athletes), the range of indicators – from 58,33% to 77,50%. At the same time, statistically significant differences (25,00%) were recorded in 2 games. In one game, higher indicators were recorded for football players of the first group (“migrants” and “nat-

uralized” athletes) and, in one game, higher indicators were recorded for football players of the second group (athletes who were born in Ukraine are national athletes of the UAF and participate in UPL competitions). This applies to matches: 24.03.21, France – Ukraine – 1:1 and 17.11.21, Bosnia and Herzegovina – Ukraine – 0:2, respectively. The comparative effectiveness of football players of the first and second groups was 70% and 30%, respectively (with one own goal);

- the 2021-2022 season: in 62,5% of official games, higher indicators were recorded for football players of the first group (“migrants” and “naturalized” athletes), the range of indicators – from 50,01% to 74,16%. No statistically significant differences were recorded. The comparative effectiveness of football players of the first and second groups was 46,15% and 53,85%, respectively.

Discussion

The results of the obtained experimental studies indicate that the modern system of long-term training of highly qualified football players needs significant correction. In this context, the issues of substantiation, development and formation of the technology of direct training of football players for official competitions of the national and international levels, taking in to account migration factors, are significant. It is necessary to take in to account the indicators of various types of long-term improvement, the characteristic features of non-training, non-competition factors, the influence of migration processes on the training system (level competitive practice and performance of “migrant” and “naturalized” football players). It is also significant to take in to account issues that are directly related to the material, technical and financial and economic support for the development of football – the national gross domestic profit, the current

legislative framework, the presence or absence of military conflicts on the territory of the country, financing of the field of physical culture and sports, amateur and of professional football clubs, the current demographic situation (population, number of people involved in football at the children's and youth, amateur, professional levels, etc.), the state of the material and technical base of football clubs and the state of the relevant accompanying infrastructure (transport, hotel, food, medical rehabilitation, etc.).

The above allows us to state that as a result of the conducted experimental studies, modern approaches to the development of new scientific directions have been formulated, which relate to the following topical issues:

- for the first time, the necessity of correcting the modern system of long-term sports training of football players, taking in to account the factors of sports migration, was substantiated;
- improved scientific data on the processes of managing the long-term training of football players, taking in to account global factors (including sports migration (Kostiukevich, Doroshenko, Sushko et al., 2023; Lisenchuk, Khmelnitska, Kokareva et al., 2021; Shchepotina, Kostiukevych, Asauliuk et al., 2021);
- directions and ways of improving long-term training as a component of the general theory of sports and the system of training athletes have gained further development (Zhurid, 2017; Kokareva, Kokarev, Doroshenko, 2018; Kokareva, Doroshenko, Kokarev, Danylchenko, 2021).

Prospects for further research are based on detailing ways to improve the management system of multi-year sports training of football players of different age groups, gender and qualification categories based on taking in to account the influence of sports migration factors. Also promising, in our opinion, is periodic monitoring of regulatory norms for admission to competitions of football players ("migrants" and "naturalized" athletes) and national UAF athletes.

Conclusions

The analysis of scientific and methodological literature, information sources of the "Internet" network and the results of own experimental research allows us to ascertain the existence of interrelationships between the factors of sports migration and the effectiveness of the competitive activity of highly qualified football players.

This state of affairs indicates the need to correct the modern system of multi-year improvement of highly qualified football players based on the development and formation of technologies for the direct training of migrant athletes for official international competitions.

The basis of this technology should be the following components:

- the composition of the team of a professional football club for official national or international competitions; registration of players taking in to account the factors of sports migration: football players are "migrants" or "naturalized" athletes, pupils of the national association's youth sports academy;
- specialized component technologies: individualization of training of football players, selective integra-

tion of individual types of training, special analysis of indicators of training and competitive activity; differentiation of team composition into typological groups: starting composition, application (protocol) composition for the game, extended team composition, close reserve; accounting of quantitative and qualitative indicators of competitive practice in accordance with its levels: regional, national, international competitions, educational and bilateral games, control and friendly games.

Conflict of interest

The authors state no conflict of interest.

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Аналіз факторів спортивної міграції та ефективності змагальної діяльності футболістів

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Авторський вклад: А – дизайн дослідження; В – збір даних; С – статаналіз; D – підготовка рукопису; Е – збір коштів

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Мета роботи: визначити шляхи корекції тренувального процесу на основі врахування впливу факторів спортивної міграції на підготовку висококваліфікованих футболістів.

Матеріал і методи. Для оцінки впливу чинників спортивної міграції на ефективність змагальної діяльності проаналізовано показники змагальної діяльності футболістів національної збірної команди України в 16 офіційних іграх протягом сезонів 2020-2021 та 2021-2022 років. Методи дослідження. Аналіз, узагальнення та систематизація даних науково-методичних літературних джерел та мережі «Інтернет», педагогічні спостереження, контент-аналіз регламентних документів змагань (за матеріалами офіційних сайтів ФІФА; УЄФА; УАФ), аналіз показників ефективності змагальної діяльності; метод експертних оцінок; методи математичної статистики.

Результати. Сезон 2020-2021 рр.: у 62,5% офіційних ігор вищі показники зафіксовано у футболістів першої групи («мігранти» та «натуралізовані» спортсмени), діапазон показників – від 58,33% до 77,50%. При цьому статистично значущі відмінності (25,00%) були зафіксовані у 2 іграх. В одній грі вищі показники зафіксовано у футболістів першої групи («мігранти» та «натуралізовані» спортсмени) та, в одній грі, вищі показники зафіксовано у футболістів другої групи (спортсмени, які народилися в Україні, є національними спортсменами УАФ та беруть участь у змаганнях УПЛ). Сезон 2021-2022 рр.: у 62,5% офіційних ігор вищі показники зафіксовано у футболістів першої групи («мігранти» та «натуралізовані» спортсмени), діапазон показників – від 50,01% до 74,16%. Статистично значущих відмінностей не зафіксовано. Порівняльна ефективність футболістів першої та другої груп склала 46,15% та 53,85% відповідно.

Висновок. Такий стан справ свідчить про необхідність корекції сучасної системи багаторічного вдосконалення висококваліфікованих футболістів на основі розробки та формування технологій безпосередньої підготовки спортсменів-мігрантів до офіційних міжнародних змагань.

Ключові слова: футбол, висококваліфіковані спортсмени, спортивна міграція, підготовка, змагальна діяльність.

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