



## TECHNOLOGY OF FORMATION OF PSYCHOLOGICAL CLIMATE IN TEAM SPORTS GAMES (ON THE MATERIAL OF VOLLEYBALL)

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### Abstract

**Purpose of the work** – scientifically substantiate the technology of forming the optimal psychological climate in volleyball to increase the effectiveness of competitive activities of athletes.

**Material and methods.** The experimental studies involved 25 qualified volleyball players - 13 athletes of VC "Orbita-ZNU-RCYSS" (Zaporizhzhya), main group, and 12 athletes of VC "Polissya-SHSM-ZhDU (Zhytomyr), control group. Analysis and generalization of scientific and methodological literature and the Internet; method "Diagnosis of personality for motivation to succeed" (by T. Ehlers); method "Assessment of moral and psychological climate in the team" (according to L. Lutoshkin); method "Assessment of the psychological atmosphere in the team" (according to L. Zhedunova). Analysis and evaluation of competitive performance indicators. Pedagogical experiment. Statistical analysis.

**Results.** The developed technology of optimization of psychological climate in volleyball contains the corresponding terms of application in a macrocycle of preparation: four consecutive developing complexes of psychological means (exercises, games and trainings). The technology of optimization of the psychological climate in the sports team of qualified volleyball players included specially developed psychological and pedagogical tasks, exercises, situational role-playing games. Interpretation and generalization of experimental research indicators allows us to state that the athletes of VC "Orbita-ZNU-RCYSS" (Zaporizhzhya) in 80% of cases have a tendency to correlate the indicators of optimizing the psychological climate and increase the effectiveness of competitive activities.

**Conclusions.** The developed technology of optimization of psychological climate in volleyball contains the corresponding terms of application in a macrocycle of preparation: four consecutive developing complexes of psychological means (exercises, games and trainings). The technology of optimization of the psychological climate in the sports team of qualified volleyball players included specially developed psychological and pedagogical tasks, exercises, situational role-playing games. Interpretation and generalization of experimental research indicators allows us to state that the athletes of VC "Orbita-ZNU-RCYSS" (Zaporizhzhya) in 80% of cases have a tendency to correlate the indicators of optimizing the psychological climate and increase the effectiveness of competitive activities.

**Keywords:** volleyball, formation, technology, optimization, psychological climate.

### Introduction

The level of development of modern volleyball is characterized by high competitiveness. At the same time, the classical system of sports training, in practice, is approaching the limit of a certain exhaustion of the system of knowledge about the athletes training, on the one hand, and the

maximum physical load on their body, on the other hand (Imas, Borysova, Dutchak, et al., 2018; Oliinyk, Doroshenko, Melnyk, et al., 2021).

At the same time, volleyball players need to demonstrate the highest possible results of competitive activities in highly variable conditions of the game, which requires the manifestation of special psychophysiological and psychological peculiarities of their personality (Salcinovic, Drew, Dijkstra, et al., 2022). So athletes, coaches, managers have to find non-

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traditional approaches to improving the effectiveness of competitive activities (Oliinyk & Voitenko, 2020). Forming of the optimal psychological climate in the sports team is one of the options for such approaches to long-term improvement (Petrovska, Malinovsky, Voronova, et al., 2021).

In the common theory of sports and the system of athletes' training (Platonov, 2017) it is widely spread the thesis that long-term athletes training has certain features that are inherent for the female body. This applies to the development of leading motor skills, structure and content of competitive activities in a particular sport, and so on. This position extends to other aspects of the female athletes' training, such as crucial issues of psychological training and the formation of optimal psychological climate in team sports, in general, and in volleyball, in particular (Drachuk, 2017; Vins & Beliakova, 2021). In addition, relevant today is aspect of applying psychological technologies for the effectiveness of volleyball teams in both competitive and training processes (Afanasiyeva, Svitlychna, Bosniuk, et al., 2019).

Achievements of modern sports psychology, particularly the effective use of special means of influencing the female athletes' personality to increase their competitive effectiveness, are obvious and confirmed by studies of authoritative Ukrainian and foreign experts (Vysochina, 2017; McEwan, Ruisssen, Eys, et al., 2017; Voronova, Petrovska, Kovalchuk, et al., 2020). This position could be logically extrapolated to the processes of long-term improvement in scientific and methodological works (Ivanii & Serhiienko, 2016; Yamchuk & Almashi, 2017).

The thesis that forming of an optimal psychological climate has a positive effect on the female athletes' competitive effectiveness is axiomatic in modern sport psychology (Vysochina & Bezmylov, 2015; Oliinyk & Doroshenko, 2018). This provision is also important for team sports: the team has a complex multi-level hierarchical structure, which usually includes several coalitions of athletes, the relationship "coach-manager", "coach-athlete", "manager-athlete", "athlete-athlete", etc. In addition, it is necessary to take into account the TOP-level volleyball players presence (or absence) in the team. Their high social status significantly complicates the process of optimizing the psychological climate in the team. The same applies to the personality of coaches or managers with the European or world level experience. In this context, the forming of an optimal psychological climate in the volleyball team is a necessary prerequisite for the successful realization of the game potential of athletes in official competitive activities.

Issues related to determining the specific features of the forming of the optimal psychological climate in volleyball teams of different age (and qualification groups) are also relevant. In adolescence, the influence of family, the authority of coaches, informal communicative leaders in the out-of-team environment is more significant that is proven in some researches (Karaulova, Oliinyk, I., & Oliinyk, M., 2014; Shalar, Strykalenko, & Husar, 2019), which are aimed at investigating the process of creating of the psychological climate in young volleyball players. Similar data were obtained in a study of the influence of parents, coaches and peers on the long-term psychological development of highly qualified and skilled volleyball players (Coutinho, Ribeiro, Mesquita da Silva, et al., 2021).

The study (Goloborodko, Kozina, Polishchuk, et al., 2018) emphasized the positive impact of using a coordination (speed) ladder on the level of technical training and

development of psychophysiological functions of 14-16 years old volleyball players. It indicates the presence of a complex relationship: specific psycho-physiological functions improve in the process of developing motor skills, which, in turn, may lead to influence on the processes of optimizing the psychological climate of the team as a whole. The connection between psychophysiological and neurodynamic functions with the technical and tactical training of volleyball players is revealed in the study (Glazyrin & Artemenko, 2013). At the heart of these processes is the investigation of the structure of the relationship between individual psychophysiological indicators of players in modern volleyball, which creates the necessary conditions for further optimization of the psychological climate in the team (Bondar, 2020).

Modern student volleyball is a base and the closest reserve for staffing professional teams. It makes topical issues of forming a psychological climate and its further optimization in the national teams of higher education institutions. Methods of moral and volitional training of volleyball players in higher education institutions are analyzed in detail in the study (Rogal & Vashkevich, 2019). The research is devoted to the problematic issues of determining the level of group cohesion in student sports teams of the Agrarian University (Rybalko, Samokhvalova, & Melyushkina, 2017). The issue of taking into account psychological compatibility as a means of improving the players' interaction in the female volleyball team of the Agricultural University was considered in the study (Samokhvalova, 2018). The main structural components of the creating of the psychological climate of the University's male volleyball team in the preparatory period of the annual training macrocycle were analyzed in the study (Brynzak, Putrov, Omelchuk, et al., 2021).

Associations between the motivational climate, basic psychological needs and the processes of sports orientation and selection of volleyball athletes in competitive practice at various levels are described in the study (Elsborg, Appleton, Wikman, et al., 2022). In particular, the authors show that the higher the level of qualification of volleyball players, the more complex are the relationships in team coalitions and relationships between individual athletes, which greatly complicates the process of optimizing the psychological climate in the team. However, the study (Mosqueda, Lopez-Walle, Gutierrez-García, et al., 2019) highlighted the relationship between the internal factors of autonomous motivation as a mediator between a favorable climate and enjoyment in the training process of volleyball players.

The issues of determining the components in the structure of the general technology of forming the psychological climate in the volleyball team deserve special attention. The study (Teslitskyy, 2017) analyzed in detail the psychological compatibility of players as a prerequisite for effective long-term improvement in volleyball. The research (Lyashenko, Korzh, Podlesnaya, & Rozputnij, 2020) is devoted to topical issues of determining the psychological climate, assessing the degree of optimality and its individual components in the volleyball team. The dependence of the success and game effectiveness of volleyball players' training and competitive activities on the individual indicators of the psychological climate in the team was analyzed in the study (Kazakov, 2011).

However, despite the thorough elaboration of topical issues related to the technology of creating a psychological cli-

mate in volleyball, a number of issues that need to be resolved remain unresolved.

*Hypothesis.* The implementation of science-based technology for forming the optimal psychological climate in volleyball would help to increase the effectiveness of athletes' competitive activities.

*The aim* is to scientifically substantiate the technology of forming the optimal psychological climate in volleyball to increase the efficiency of competitive activities of athletes.

## Material and methods

### Participants

The experimental studies involved 25 qualified volleyball female players: main group – 13 female athletes from volleyball club “Orbita-ZNU-ODYUSSH” (Zaporizhzhya), and control group – 12 female athletes from volleyball club “Polissya-SHVSM-ZhDU” (Zhytomyr).

### Organization of research

The research was conducted during 2017-2020 at the sports facilities of the Zaporizhzhya Regional Children and Youth Sports School of the Zaporizhzhya Regional Council and the Department of Physical Rehabilitation, Sports Medicine, Physical Education and Health of Zaporizhzhya State Medical University of the Ministry of Health of Ukraine. The technology of psychological climate optimization has been implemented in the annual macro cycle of training of athletes from the main group – VC “Orbita-ZNU-ODYUSSH” (Zaporizhzhya). The obtained results were compared with the performance of athletes from control group – VC “Polissya-SHVSM-ZhDU” (Zhytomyr).

### Methods of research

Analysis and generalization of scientific and methodological literature and the Internet resources allowed to summarize and systematize the experience of specialists who studied the problem of forming the technology of optimizing the psychological climate in sports in general and volleyball in particular. Determining the level of individual components of the psychological climate in the main group – VC “Orbita-ZNU-ODYUSSH” (Zaporizhzhya): the methodology of motivation for success (by T. Ehlers); methodology “Assessment of moral and psychological climate in the team” (by L. Lutoshkin); methodology “Assessment of the psychological atmosphere in the team” (by L. Zhedunova). The analysis and evaluation of competitive performance indicators was used to determine the relationship with the components of the psychological climate of the team. The pedagogical experiment consisted in the formation of technology for optimizing the psychological climate in the volleyball team and experimental verification of its effectiveness.

### Statistical analysis

The obtained indicators were analyzed using methods of mathematical statistics, such as determination of arithmetic mean ( $X$ ), arithmetic mean error ( $m$ ), square deviation ( $S$ ),

determination of percentage value (%), correlation coefficient ( $r$ ) and statistically significant differences (at  $p < 0.01$  and  $p < 0.05$ ).

## Results

The authors have developed the technology of optimizing the psychological climate in the sports team (based on the materials of qualified volleyball female players) during four consecutive developing complexes of psychological classes and trainings:

- the first complex focused on the personal development of female athletes: the impact on the personal development of female athletes; purposeful formation “self-confidence and their abilities” among volleyball female players; building a set of psychological features and structures aimed at the success of psychological self-regulation;
- the second complex aimed at improving interpersonal interaction in the team at the level of “athlete – athlete”: purposeful formation of interpersonal skills, improving relationships and communication in the team, finding common ground to achieve goals, ability to interact and identify problems of sports team and find the best solutions to them;
- the third complex aimed at improving interpersonal interaction in the team at the level of “athlete – coach”: improving the relationship between female athletes and coaches; formation of a sense of mutual respect and trust; increasing the level of authority of the coach in the sports team;
- the fourth complex focused on the formation of skills to optimize the psychological climate in the team as a factor that improves the effectiveness of competitive activities: the formation of skills to optimize the psychological climate in the team, creating a positive atmosphere; promoting trusting and sincere relationships; team building and building effective interaction; establishing mutual understanding.

Specially developed psychological and pedagogical tasks, exercises, situational role-playing games were included in the technology of optimization of the psychological climate in the sports team of qualified volleyball female athletes.

Creating the favorable psychological and pedagogical conditions by discussion, training, situational role-playing and creative games was implemented in the process of forming the technology of optimizing the psychological climate in the team.

The structure of the technology of optimization of psychological climate in a sports team has the algorithmic sequence of formation of psychological skills, which consists of three phases:

- phase of orientation, which contributes to the effective implementation of information and motivational functions;
- phase of training, which contributes to the effective mastering of the pedagogical function by obtaining the necessary knowledge, as well as their application in specific conditions of the sports team;
- phase of practical mastery, which is aimed at bringing the acquired knowledge, skills and abilities to automatism in practical activities, including training and competitive activities of athletes.

The experimental studies were aimed at testing the effectiveness of the technology of optimizing the psychological climate in the volleyball team to increase the effectiveness of competitive activities of female athletes.

Motivation of sports activity is a complex hierarchical personal formation, which, at the same time, is determined by the psychophysiological characteristics of the female athlete's personality and the specific situation in the training and competitive activities. Motivation to achieve success is the basis for the development of sportsmanship of volleyball players and, it is one of the leading components of the technology of forming an optimal psychological climate in the team.

The indicators of personal motivation to success in athletes from VC "Orbita-ZNU-ODYUSSH" (Zaporizhzhya) and VC "Polissya-SHVSM-ZhDU" (Zhytomyr) are presented in table 1.

**Table 1.** The results of the diagnosis of personality for motivation to success in volleyball female players \*,%, (n = 25)

Motivation levels	VC "Orbita-ZNU-ODYUSSH" (Zaporizhzhya)		VC "Polissya-SHVSM-ZhDU" (Zhytomyr)	
	n = 13	%	n = 12	%
	high	4	30.8	4
medium	6	46.1	5	41.7
low	3	23.1	3	25

Note. \* - according to the Ehlers' methodology.

Female athletes from VC "Orbita-ZNU-ODYUSSH" (Zaporizhzhya) and VC "Polissya-SHVSM-ZhDU" (Zhytomyr) have mostly medium (46.1% and 41.7%, respectively) and high levels of motivation to success (30.8% and 33.3%, respectively) based on the results of the methodology of motivation for success (by T. Ehlers). This shows that the qualified volleyball female players from the Super League (VC "Orbita-ZNU-ODYUSSH", Zaporizhzhya) and the Super League (VC "Polissya-SHVSM-ZhDU", Zhytomyr) of the National Championship do not have statistically significant differences in the motivation to success.

The analysis of the correlation between the results with athletes from the VC "Orbita-ZNU-ODYUSSH" (Zaporizhzhya) by the methodology of motivation for success (by T. Ehlers) in comparison with the effectiveness of their competitive activities is presented in Table 2, namely: indicators of points scored per game; indicators of offensive technical and tactical actions per game; indicators of the effective passing of a ball per game; indicators of effective blockings per game; indicators of effective catching of a ball per game.

80% of the leading technical and tactical actions in the competitive activities of skilled volleyball female players have a high level of correlation with the manifestations of personal motivation to success (by T. Ehlers): the correlation coefficient, r, is in the range from 0.786 to 0.932. The lowest value of the correlation coefficient was recorded in terms of the relationship between motivation to success and offensive technical and tactical actions per game: r = 0.124 according to data analysis presented in Table 2.

Analysis of the correlation between the results by the methodology "Assessment of moral and psychological climate in the team" (by L. Lutoshkin) with the effectiveness of their competitive activities was done (see Table 3).

**Table 2.** Correlation between the results by the methodology of motivation for success (by T. Ehlers) and the effectiveness of competitive activities of female athletes from VC "Orbita-ZNU-ODYUSSH" (Zaporizhzhya) (n = 13)

Methodology	Indicators	r	t	p
Methodology of motivation for success (by T. Ehlers)	indicators of points scored per game	0.786		
	indicators of offensive technical and tactical actions per game	0.124		
	indicators of the effective passing of a ball per game	0.809	2.39	0.01
	indicators of effective blockings per game	0.932		
	indicators of effective catching of a ball per game	0.728		

Notes: r – correlation coefficient; t – Student's criteria; p – level of significance

80% of leading technical and tactical actions in competitive activity of qualified volleyball female players have a high level of interrelation of manifestations of motivation of the person to success: value of correlation coefficient, r, is in the range from 0.728 to 0.922 according to data analyses from Table 3. The lowest value of the correlation coefficient was also recorded in terms of the relationship between motivation for personal success and offensive technical and tactical actions in competitive activities: r = 0.496.

**Table 3.** Correlation between the results by the methodology "Assessment of moral and psychological climate in the team" (by L. Lutoshkin) and the effectiveness of competitive activities of female athletes from VC "Orbita-ZNU-ODYUSSH" (Zaporizhzhya) (n = 13)

Methodology	Indicators	r	t	p
"Assessment of moral and psychological climate in the team" (by L. Lutoshkin)	indicators of points scored per game	0.922		
	indicators of offensive technical and tactical actions per game	0.496		
	indicators of the effective passing of a ball per game	0.907	2.26	0.01
	indicators of effective blockings per game	0.876		
	indicators of effective catching of a ball per game	0.728		

Notes: r – correlation coefficient; t – Student's criteria; p – level of significance

In addition, the analysis of the correlation between the results by the methodology "Assessment of the psychological atmosphere in the team" (by L. Zhedunova) with the effectiveness of their competitive activities was implemented (see Table 4).

**Table 4.** Correlation between the results by the methodology “Assessment of the psychological atmosphere in the team” (by L. Zhedunova) and the effectiveness of competitive activities of female athletes from VC “Orbita-ZNU-ODYUSSH” (Zaporizhzhya) (n = 13)

Methodology	Indicators	r	t	p
“Assessment of the psychological atmosphere in the team” (by L. Zhedunova)	indicators of points scored per game	0.961		
	indicators of offensive technical and tactical actions per game	0.477		
	indicators of the effective passing of a ball per game	0.965	2.58	0.01
	indicators of effective blockings per game	0.956		
	indicators of effective catching of a ball per game	0.860		

Notes: r – correlation coefficient; t – Student’s criteria; p – level of significance

The results from Table 4 confirm the existence of this trend. Thus, it could be noted the tendency to reduced indicators of the correlation between motivation for personal success and offensive technical and tactical actions in the competitive activities of volleyball female players done according to the tests 2Methodology of motivation for success” (by T. Ehlers), “Assessment of moral and psychological climate” (by L. Lutoshkin) and “Assessment of the psychological atmosphere in the team” (by L. Zhedunova): r = 0.124, r = 0.496 and r = 0.477, respectively.

The indicators of the number of points scored in the competitive activities of volleyball female players before and after the implementation of technology to optimize the psychological climate in the team is shown in Table 5.

Comparative analysis of the indicators presented in table 5, allows us to state that after the implementing of technology to optimize the psychological climate in the sports team there are the following changes,

**Table 5.** Comparative analysis of indicators of the number of points scored in the competitive activities of volleyball female players of different roles, n = 25

Role	Values of indicators					
	Before the experiment			After the experiment		
	ranges, n1 (min – max)	averaged, (X ± m)	S	ranges, n1 (min – max)	averaged, (X ± m)	S
VC “Orbita-ZNU-ODYUSSH” (Zaporizhzhya), n = 13						
point guard player	1.46 – 1.75	1.61 ± 0.15	0.21	1.61 – 1.89	1.75 ± 0.14	0.2
diagonal player	14.04 – 16.54	15.29 ± 1.25	1.77	15.5 – 17.29	16.40 ± 0.9	1.27
playing out player	6.61 – 9.54	7.66 ± 0.68	1.37	6.28 – 9.04	7.86 ± 0.58	1.17
central blocking player	4.14 – 4.89	4.43 ± 0.23	0.41	4.46 – 5.18	4.88 ± 0.22	0.37
VC “Polissya-SHVSM-ZhDU” (Zhytomyr), n = 12						
point guard player	1.1 – 1.3	1.2 ± 0.1	0.14	1.27 – 1.45	1.36 ± 0.09	0.13
diagonal player	8.5 – 10.3	9.4 ± 0.9	1.27	9.18 – 11.82	10.50 ± 1.32	1.87
playing out player	10.4 – 14.2	12.3 ± 1.9	2.69	12.27 – 15.45	13.86 ± 1.59	2.25
central blocking player	4.1 – 8.2	6.28 ± 0.92	1.83	4.55 – 8.18	6.64 ± 0.79	1.58

Notes: min – minimally sufficient; max – maximum; n – number of games; n1 – values of indicators; ± - arithmetic mean; m – the standard error of the mean; S – the standard deviation

VC “Orbita-ZNU-ODYUSSH” (Zaporizhzhya):

- “point guard player” (t = 7.63; p < 0.01): before the experiment – 1.61 + 0.15 points (4.14%), after the experiment – 1.75 + 0.14 points (4.22%);
- “diagonal player” (t = 8.75; p < 0.01): before the experiment – 15.29 + 1.25 points (39.36%), after the experiment – 16.40 + 0.9 points (39.55%);
- “playing out player” (t = 12.11; p < 0.01): before the experiment – 7.66 + 0.68 points (39.4%), after the experiment – 7.86 + 0.58 points (38.56%);
- “central blocking player” (t = 11.29; p < 0.01): before the experiment – 4.43 + 0.23 points (17.1%), after the experiment – 4.88 + 0.22 points (17.67%).
- VC “Polissya-SHVSM-ZhDU” (Zhytomyr):
- “point guard player” (t = 12.61; p < 0.01): before the experiment – 1.20 + 0.10 points (3.39%), after the experiment – 1.36 + 0.09 points (3.5%);
- “diagonal player” (t = 9.7; p < 0.01): before the experiment – 9.4 + 0.9 points (26.52%), after the experiment – 10.50 + 1.32 points (26.92%);
- “playing out player” (t = 8.4; p < 0.01): before the experiment – 12.3 + 1.9 points (34.7%), after the experiment – 13.86 + 1.59 points (35.55%);
- “central blocking player” (t = 9.91; p < 0.01): before the experiment – 6.28 + 0.92 points (35.4%), after the experiment – 6.64 + 0.79 points (34.03%).

The results of comparative analysis show that there are no significant differences, but there is a tendency to increase the number of points scored in the competitive activities of female athletes from VC “Orbita-ZNU-ODYUSSH” (Zaporizhzhya), where the technology of optimizing the team’s psychological climate was implemented.

## Discussion

The basis for the study is the hypothesis of the possibility to apply the technology of optimizing the psychological climate in the volleyball team to increase the effectiveness of competitive activities. The substantiation of this thesis is carried out on the basis of the scientific literature analysis,

the experimental researches, processing and interpretation of their results. The results of experimental research allow to state that the use of technology to optimize the psychological climate in the volleyball team tends to increase the effectiveness of competitive activities, and the hypothesis is true.

The provisions that have positions of scientific novelty are determined in the process of systematizing the data of the scientific literature and the obtained results of experimental research. In particular, for the first time, the technology of optimizing the psychological climate in the volleyball team was developed on the basis of purposeful influence on the personal development of female athletes, improvement interpersonal interaction in the sports team at the level of “athlete – athlete”, “coach – athlete”, formation of skills to optimize the psychological climate in the team (Vysochina & Bezmylov, 2015; Drachuk, 2017; Oliinyk & Doroshenko, 2018). Also, for the first time, the algorithm of the process of optimizing the psychological climate in a sports team is proposed, which has theoretical and practical levels and the following stages: diagnostic (assessment of individual characteristics of athletes and coaches, interaction and psychological climate), approbation (technology implementation) and control-correctional (summarizing and providing practical recommendations to coaches) (Karaulova, et al.; Lyashenko, et al., 2020). In addition, for the first time, the correlation between indicators of the psychological climate in the volleyball team and indicators of their competitive activities is defined (Oliinyk & Doroshenko, 2018; Samokhvalova, 2018) and complexes of special means (exercises, games, trainings) are developed to optimize the psychological climate in the volleyball team in the training macrocycle (Oliinyk, et al., 2021; Elsborg, et al., 2022).

Data on the use of means and methods to optimize the psychological climate in the volleyball team (Kazakov, 2011) and the need to take into account the type of temperament of female athletes in the competitive activities of qualified volleyball players (Bondar, 2020) is updated.

Data on the positive impact of personal characteristics of volleyball female players on the psychological climate in the sports team and the effectiveness of their competitive activities (Rybalko, et al., 2017; Teslitsky, 2017), and the importance of a positive psychological climate for successful competitive activities of athletes (Vysochina, 2017; Petrovska, et al., 2021) are confirmed.

The idea of the influence of the coach's personality on the optimization of the psychological climate of the sports team was further developed (Rogal & Vashkevich, 2019; Afanasieva, et al., 2019; Mosqueda, et al., 2019; Coutinho, et al., 2021).

Prospects for further research in this area are based on the need to identify features and differences in the formation of technology to optimize the psychological climate in female's and male's teams, as well as finding likely influences of formal and informal leaders in the formation of psychological climate.

## Conclusions

The developed technology of optimization of psychological climate in volleyball contains the corresponding terms of application in a macrocycle of preparation: four consecutive developing complexes of psychological means (exercises, games and trainings). The technology of optimization of the psychological climate in the sports team of qualified volley-

ball female players included specially designed psychological and pedagogical tasks, exercises, situational role-playing games. The algorithmic sequence of formation of psychological skills, which consists of three phases: phases of orientation, phases of training, phases of practical mastering, is considered in the structure of the developed technology of optimization of psychological climate in sports team.

Interpretation and generalization of experimental research indicators allows us to state that there is a tendency to correlate the indicators of optimizing the psychological climate and increase the effectiveness of competitive activities in 80% of cases for female athletes from VC “Orbita-ZNU-ODYUSSH” (Zaporizhzhya).

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## Conflict of interest

The authors declare no conflict of interest.

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## ТЕХНОЛОГІЯ ФОРМУВАННЯ ПСИХОЛОГІЧНОГО КЛІМАТУ У КОМАНДНИХ СПОРТИВНИХ ІГРАХ (НА МАТЕРІАЛІ ВОЛЕЙБОЛУ)

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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 дослідження** – науково обґрунтувати технологію формування оптимального психологічного клімату у волейболі для підвищення ефективності змагальної діяльності спортсменок.

**Матеріали і методи.** В експериментальних дослідженнях брали участь 25 кваліфікованих волейболісток – 13 спортсменок ВК «Орбіта-ЗНУ-ОДЮСШ» (Запоріжжя), основна група, та 12 спортсменок ВК «Полісся-ШВСМ-ЖДУ» (Житомир), контрольна група. Аналіз та узагальнення науково-методичної літератури і мережі «Internet»; методика «Діагностика особистості на мотивацію до успіху» (за Т. Ehlers); методика «Оцінка морально-психологічного клімату у колективі» (за Л. Лутошкіним); методика «Оцінка психологічної атмосфери у колективі» (за Л. Жедуною). Аналіз та оцінка показників ефективності змагальної діяльності. Педагогічний експеримент. Статистичний аналіз.

**Результати.** Після впровадження розробленої технології оптимізації психологічного клімату у тренувальний процес ВК «Орбіта-ЗНУ-ОДЮСШ» (Запоріжжя), констатуємо наявність тенденції до знижених показників взаємозв'язку мотивації до успіху особистості та атаквальних техніко-тактичних дій у змагальній діяльності волейболісток за тестами Т. Елерс «Діагностика особистості на мотивацію до успіху», Л. Лутошкін «Оцінка морально-психологічного клімату у колективі» та Л. Жедунова «Оцінка психологічної атмосфери у колективі»:  $r = 0,124$ ,  $r = 0,496$  і  $r = 0,477$  відповідно. За іншими показниками техніко-тактичних дій (набрані очки, подача м'яча, блокування, прийом м'яча) зафіксовано високі значення показників коефіцієнту кореляції.

**Висновки.** Розроблена технологія оптимізації психологічного клімату у волейболі містить відповідні терміни застосування у макроциклі підготовки: чотири послідовних розвивальних комплекси психологічних засобів (вправ, ігор і тренінгів). До складу технології оптимізації психологічного клімату в спортивній команді кваліфікованих волейболісток увійшли спеціально розроблені психолого-педагогічні завдання, вправи, ситуаційно-рольові ігри. Інтерпретація та узагальнення показників експериментальних досліджень, дозволяє констатувати, що у спортсменок ВК «Орбіта-ЗНУ-ОДЮСШ» (Запоріжжя) у 80% випадків, наявна тенденція до взаємозв'язку показників оптимізації психологічного клімату та підвищення ефективності змагальної діяльності.

**Ключові слова:** волейбол, формування, технологія, оптимізація, психологічний клімат.

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