Aspects of psychological training of volleyball players of different ages

Iryna Sobko *, Olena Fylypchenko1ABCD, Yana Sobko 2А

1 H.S. Skovoroda Kharkiv National Pedagogical University, Kharkiv, Ukraine
2 National Technical University «Kharkiv Polytechnic Institute», Kharkiv, Ukraine

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* - Correspondent author

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How to site

Abstract

Background and purpose
In the process of long-term training, volleyball athletes face a number of difficulties, such as high requirements for participation in competitions, intense workloads, competition, team relationships, and crisis situations in the athlete’s life. Therefore, psychological training should be an integral part of athletes’ activities. Objective: to carry out a comparative characterization of psychological preparation of volleyball players of different ages and to give recommendations for improvement of game performance.

Material and methods
The study involved 15 athletes (aged 13-16 years) and 13 athletes (aged 20-28 years) from Šumperk, Czech Republic. Volleyball players of the Czech club TJ Šumperk. The experiment took place in December 2023. Methods: analysis of scientific literature, questionnaires, method mathematical statistics.

Results
Based on the analysis, it can be said that psychological preparation in the training and competitive activities of young athletes should differ from adult athletes in many aspects, taking into account the peculiarities of adolescent development. Significant differences were found between the study groups; young athletes have more pronounced individual differences in psychological development, so adolescents need more attention to motivation, confidence, emotional stability, and reaction to stressful situations in the game. The psychological preparation of adult players after a certain game and competitive practice begins to be based on the experience of their own well-being and interaction with teammates. Analyzing the reaction to successes and failures, understanding the emotional state of the players in the team, and the general atmosphere of the team helps to adapt your own behavior to different situations within and outside the team.

Conclusions
Psychological training plays a key role in creating optimal conditions for effective performance of athletes in volleyball, so the coach needs to take into account the mental state of volleyball players.

Keywords
psychological training, volleyball, athletes, questionnaires
Анотація

Ірина Собко, Олена Філінченко, Яна Собко. Аспекти психологічної підготовки волейболістів різного віку

У процесі багаторічного тренування спортсмени в волейболі стикаються з рядом труднощів, таких як високі вимоги до участі у змаганнях, інтенсивні навантаження, конкурентна боротьба, взаємовідносини в команді, кризові ситуації в житті спортсмена. Тому, психологічна підготовка повинна бути невід’ємною частиною діяльності спортсменів. Мета: провести порівняльну характеристику психологічної підготовки волейболістів різного віку та надати рекомендації для покращення ігрової результативності.

У дослідженні взяли участь 15 спортсменів (вік 13-16 років) та 13 спортсменів (вік 20-28), м. Шумперк, Чехія. Волейболісти чеського клубу TJ Šumperk. Експеримент проходив у грудні 2023 року. Методи: аналіз наукової літератури, анкетування, метод математичної статистики.

На основі проведеного аналізу можна сказати, що психологічна підготовка в тренувальній та змагальній діяльності юних спортсменів повинна відрізнятись від дорослих спортсменів у багатьох аспектах, враховуючи особливості розвитку підлітків. Виявлено достовірні відмінності між досліджуваними групами, у юних спортсменів більш виражені індивідуальні відмінності у психологічному розвитку, тому підлітки потребують більшої уваги до мотивації, впевненості, емоційної стабільності, реакції на стресову ситуацію у грі. Психологічна підготовка дорослих гравців після певної ігрової та змагальної практики починає базуватися на досвіді власного самопочуття та взаємодії з товаришами по команді. Аналіз реакції на успіхи та невдачі, розуміння емоційного стану гравців у команді, загальної атмосфери команди допомагає адаптувати власну поведінку до різних ситуацій усередині та поза командою.

Психологічна підготовка відіграє ключову роль у створенні оптимальних умов для ефективного виступу спортсменів в волейболі, тому тренеру необхідно враховувати психічний стан волейболістів.

Психологічна підготовка, волейбол, спортсмени, анкетування
Introductions

Volleyball has gained an incredible following around the world. It is a very dynamic and spectacular game that attracts the attention of almost all people [1]. A lot of research has been conducted, a large number of different methods and techniques of training athletes have been introduced to improve the game and make it even more popular [2-4]. As practice shows, some coaches, paying all their attention to the study and improvement of technical and tactical, physical qualities, forget that the psychological development of an athlete is also no less important in volleyball. Especially when there are not many training sessions during a microcycle, and in a short period of time you need to skillfully organize the work so that the team's final result is at a high level. This problem has been repeatedly described in many articles and various methods of moral and volitional training have been proposed, and the peculiarities of psychological training of volleyball players during competitive and training activities have been characterized [5,6].

As some authors point out, the coach's knowledge of the character, temperament, motivation, volitional qualities of each volleyball player and the team as a whole is one of the important factors of psychological preparation[7-8]. The education of volitional qualities of volleyball players is in overcoming objective difficulties of mastering the technique and tactics of the game, in overcoming the opponent's resistance, the need to continue working against the background of fatigue, after minor injuries, etc. subjective difficulties (fear of the opponent, embarrassment in front of the audience, distrust of judges, unfavorable emotional state, etc.) The collective nature of the actions of team players determines the requirements for their game organization. The game organization is determined by the ways in which the players are united into an integral team. Here, we can distinguish different types of game structures: a) role-based (players' roles); b) functional (ways of interaction between team players); c) leadership and management (relations between the team leader and players' subordination); d) information (main information channels between players, taking into account their subordination) [9-12].

In Europe, this issue is also quite relevant. After all, nowadays almost all coaches and teams are trying to achieve unity in the performance of each game element at the highest levels of world volleyball. Thus, the author examined the psychological impact of coaches on volleyball players in his work[13]. It is impossible not to mention here the book "Základní škola volejbalu" by Zdeněk Haník, who created an age volleyball pyramid and described in detail the development and features of teaching volleyball to a child from 3 years old to the full 20. In one of the chapters, they vividly noted exactly what a coach should know and do at the beginning of working with a team [14]. After analyzing most of the works of foreign scientists [15-18], we cannot but single out the author who considered the problem of low accuracy of parameters in the process of psychological training of volleyball players. In order to further improve the accuracy of mental health training methods based on artificial intelligence computation, he used a neural network and a long-term and short-term memory network to analyze the model. He applied an estimation algorithm to describe the data, and obtained an optimization model to describe the mental health feasibility study. The results of the relevant studies may suggest a new model and method for training volleyball players' mental health[19]. Thus, the reviewed and analyzed series of works only proves once again that progress in volleyball is very rapid and contributes to the comprehensive development and improvement of athletes. Purpose: to make a comparative characterization of psychological preparation of volleyball players of different ages and to give recommendations for improvement of game performance.

Material and methods

Participants

Participants: The study involved group 1 - 15 athletes aged 13-16 years (boys) and group 2 - 13 athletes aged 20-28 years (men) of the Czech volleyball club TJ Šumperk, Šumperk, Czech Republic. Athletes of both groups train and participate in the Pardubický kraj KP kadetů and Olomoucký kraj KP mužů competitions at their own expense. All participants and their parents agreed to participate in the experiment.

Procedure

The experiment took place in December 2023. The survey was conducted in an interactive form using a Google form on the Internet. The athletes of both groups filled out a questionnaire consisting of
14 questions, each of which had 3 answer options.

**Description of the questionnaire**

**Question 1.** Why do you play volleyball?
A) I like spending time with friends, going to competitions and keeping my body in good shape;
B) I want to become a professional athlete and later play in a high-level team;
C) I don't work out of my own free will (parents' wishes/friends asked).

**Question 2.** How do you understand the psychological preparation of an athlete?
A) educational and ideological work of the coach with the athlete;
B) formation during training (competitions) of firm confidence in one's strength and ability to perform tasks;
C) measures aimed at forming a sports character, awareness and assessment of one's abilities.

**Question 3.** How exactly do you imagine psychological training?
A) receive more attention and information from the trainer;
B) plan team trips to nature, games, walks;
C) pay more attention to the theoretical part in training and outside of it.

**Question 4.** In what percentage ratio do you receive enough attention from the coach?
A) less than 50%;
B) 55-80%;
C) 85-100%.

**Question 5.** How do you perceive negative emotions, criticism from the coach?
A) I don't argue, but I try to listen to the coach's advice, because he is always right;
B) I am offended because I think that the coach is quite strict with me;
C) I don't care, I don't notice him.

**Question 6.** What percentage of the time do you listen and follow the coach's comments?
A) less than 50%;
B) 55-80%;
C) 85-100%.

**Question 7.** In what percentages do you evaluate your work and your contribution to the team?
A) less than 50%;
B) 55-80 %;
C) 85-100 %.

**Question 8.** How do you feel when you make a mistake during the game?
A) I get very angry, my hands immediately drop;
B) I feel very ashamed in front of the coach and the team, I don't want to repeat the same mistake, so it is better to ask the team to cover me at the reception or not to pass;
C) I was unlucky, but I immediately want to play another ball.

**Question 9.** How do you feel when you win a set?
A) a surge of energy, I want to win even more, the main thing is not to stop;
B) the set is won, you can relax;
C) I don't care if I win or lose, as long as I play well.

**Question 10.** How do you feel after losing two sets in a row?
A) very angry with my team, nervous;
B) I see no point in continuing the game, we will lose anyway;
C) I want to pull myself together and give my opponent maximum resistance.

**Question 11.** How do you feel when the score is 24:24?
A) a great responsibility, I want to take the game into my own hands and win;
B) I'm very nervous, I don't want to touch the ball at that moment, so as not to let the team down;
C) I try to be calm and balanced.

**Question 12.** How do you feel when you lose a game or a competition in general?
A) Very sad, I don't want to communicate with anyone;
B) It's a shame, but I want to go to training to improve my skills and abilities;
C) It doesn't matter if I lost or not, it can happen to anyone.

**Question 13.** How do you feel about your teammate when he makes a mistake?
A) I don't want him to continue playing because he is not helping us at all;
B) I will immediately support or help him in receiving or defense;
C) Not at all, he can handle it on his own.

**Question 14.** How do you feel about your teammate when he or she scores a point (or several)?
A) I am very happy and proud, together we will achieve victory;
B) I am jealous because I also want to bring points to the team;
C) I don't care, the main thing is to finish as soon as possible.
Statistical analysis

The research used the method of mathematical statistics using the Microsoft Excel program to determine the arithmetic mean. Using SPSS Statistic 26 programme, the questionnaire results were compared using Chi-square criterion to test the mutual independence of the two variables of the contingency table.

Results

The analysis of literature has allowed to reveal specific features of volleyball, such as extremity of game conditions, change of states of each player, dynamics of mental states of the team as a whole. The authors note the use of psychological training means in the training and competition period, aimed at the formation of the necessary personality traits and mental states, which determine the effectiveness and stability of competitive activity. In this regard, a comparative characterisation of the answers to the questions of volleyball players of different ages was carried out to improve the psychological climate in teams and form a team spirit.

When comparing the results of answers to the questions of the questionnaire by the chi-square test it was revealed that the studied groups do not differ from each other significantly in all answers except for №6, №10 (table.1,2)

Figures 1. and 2. show the answers to the first set of questions, which concerned the motivation to play volleyball and the athletes' understanding of the importance of psychological preparation in sport.

**Fig.1.** The percentage of answers to the questions (1-7) of athletes of the 1st group (14-16 years old)

It can be noted that the main motivation for both groups of athletes to play volleyball is to maintain their bodies at a high physical level, have a good time and participate in competitions; only a small percentage of athletes plan to play this sport professionally in the future, unfortunately, 14.3% of young athletes do not play volleyball by choice. Nevertheless, the overall percentage of those willing in this matter is sufficient to fully coincide with the desires and plans of the coaching staff. Regarding the athletes' awareness of psychological preparation, we can say that all the answers are correct, but choosing one allows us to see what factors the guys rely on when talking about this term. Based on the answers to the third question, we can see that 76.4% of young athletes would like to receive psychological training from a coach, while 52.6% of adult athletes consider joint team trips to nature, games, and walks to be the best option for psychological training.

According to the answers to the fourth and fifth questions, about 80% of Group 1 athletes receive enough attention from the coach, do not argue in critical situations and try to listen to the coach’s advice. Athletes of group 2 in 30% do not pay attention to instructions and criticism from the coach.
Fig. 2. The percentage of answers to the questions (1-7) of athletes of the 2st group (20-28 years old)

Table 1

Comparison of the results of answers to question 6 of the questionnaire for the chi-square criterion of group 1 (n = 15) and group 2 (n = 13)

<table>
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<tr>
<th>Indicators</th>
<th>Significance</th>
<th>df</th>
<th>Asymptotic significance (2-sided)</th>
<th>significance Monte Carlo (2-sided)</th>
<th>99% confidence interval</th>
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Notes:
- a. For a cell count of 4 (66.7%), a value less than 5 is assumed. The minimum assumed number is 2.32.
- b. Based on a sample of 10000 tables with an initial value of 1634676757.
- b. The standardised statistic is 4.322.

The significant difference between the groups (Table 1) as a result of the answers to the sixth question showed that young athletes listen more to the coach's comments than adults. It should be noted that the coach's authority is very important, and the athlete should understand that they should always listen to the coach, not argue, not engage in unnecessary dialogues, not make excuses and not try to prove anything. Regarding the seventh question, we can conclude that most athletes of both groups highly appreciate their work in the team, consider themselves hardworking and necessary during training and competition (Fig. 1, 2).

Analyzing the reaction of athletes to their mistakes and their attitude towards them, we can conclude that most players of both age categories want to play the next game as soon as possible after losing a point and correct the mistake (Question 8). This approach can be considered correct when the player is calm and balanced before the next draw, but if he is driven by anger and irritation, then there is a high probability of making a mistake again. In the younger age group, 35.6% of respondents answered "I am very ashamed in front of the coach and the team, I don't want to repeat the same thing, so it is better to ask the team to cover me at the reception or not to pass." This reaction can be explained by low self-esteem and lack of confidence in their actions.
The analysis of answers to question 9 showed that the players' feelings after a winning set in both age categories are mostly positive, charging for the next set, and causing excitement. In the younger age category, 47.8% of athletes said they were happy to win a set, but considered it necessary not to lose in the next set. This answer reflects an internal fear of a possible lost set and indecision in their own actions, which can affect the course of the game. There were no options for "won the set, you can relax", but it is still important to note the level of play of the opponents. If the team on the other side of the net does not have a high level of skill, it is sometimes better to save your energy for the next match. This answer reflects the internal fear of a possible lost set and indecision in one's own actions, which can affect the course of the game.

Significant differences between the groups (Table 2) were revealed by the results of answers to the question "How do you feel after losing two sets in a row?", which shows young athletes' negative reaction to failure and inability to cope with their own emotional stress and that of the team. This reaction requires active psychological work with young athletes. Athletes of the second group can take their emotions under control and continue the fight, which shows the ability to control themselves in a difficult situation.

The ability to control one's actions and thoughts at a crucial moment is important in all game sports. In the senior age group, 92.2% of players with a score of 24:24 said that in the decisive play they want to take responsibility and lead the team to victory, which shows high self-esteem and self-confidence. 46.8% of the athletes in the younger age group said they were very nervous and did not want to touch the ball.

The attitude towards failure is an important aspect in the psychological preparation of athletes. Answers to question 12 showed that in the older age group, 30% said that they did not care about the final result and that losing can happen to anyone. This position can be explained by emotional burnout and a significant number of losses in the past. In the younger age group, only one participant chose this answer. Indifference to failures in youth can have a negative impact on future performance, as a calm attitude to losses will not lead to a desire to win. In the younger age group, the answer «Very sad, I don’t want to communicate with anyone» prevails with a small difference. For young men, failure can cause resentment and sadness, and this is normal for this age. Usually, this feeling goes away in a day, and at the next training session, the athletes are ready to do their best.

When asked about their attitude towards a teammate after his mistakes, 66% of the younger group said they were ready to support and help their partner in the next draw. 20% noted that such a course of the game causes them irritation and unwillingness to further interact with such a player. In the adult age group, 61% of athletes showed their trust in their partners and did not see the need to interfere in the emotional state of their friends. The differences in the survey results in both categories can be explained by the experience and understanding of the psychological state of the team during the game of the adult age group. To the last question in both categories, players answered that they rejoice in the success of their teammates. Volleyball is a team sport and understanding “either we all win together or we all lose together” is very important for achieving results. Internal competition will always exist, and it helps the whole team grow, but you need to see the boundaries and try to remove it while playing on the court.

Thus, at the youth sports stage, the growth of volleyball players in physical, technical, tactical and psychological areas still depends on the coach and his instructions. The coach explains to the players the principles of behavior and the correct attitude towards partners and game situations on the court. Therefore, the responses of young players at this stage of training usually depend on the guidance of
their coach. The psychological preparation of adult players, after gaining some game and competitive practice, begins to be based on the experience of their own well-being and interaction with teammates. Analyzing reactions to successes and failures, understanding the emotional states of teammates, and the general atmosphere of the team during training and competitions helps to adjust one’s own behavior to different situations within and outside the team.

Fig. 3. The percentage of answers to the questions (8-14) of athletes of the 1st group (14-16 years old)

Fig. 4. The percentage of answers to the questions (8-14) of athletes of the 2nd group (20-28 years old)

Table 2

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Notes: a. For the number of cells 2 (33.3%), a value less than 5 is assumed. The minimum number assumed is 0.93. b. Based on a sample of 10000 tables with an initial value of 1634676757. c. Standardised statistics - 3.570.
Discussion

According to experts, psychological training in the training and competition period is aimed at the formation of necessary personality traits and mental states, which determine the effectiveness and stability of competitive activity [20-22]. Therefore, it is necessary to diagnose and regulate the psychological states of volleyball players.

Based on the analysis we can say that psychological readiness for training and competitive activity of young athletes differs from adult athletes in many aspects, taking into account physiological, psychological and social features of adolescent development. In adolescence, the formation of personality is still ongoing, and the psyche of the athlete is more flexible. Psychological training should take this process into account and help athletes develop psychological qualities necessary for successful training process and competitive experience [23]. Individual differences in psychological development are more pronounced in young athletes. Some adolescents may need more attention to motivation, confidence, and emotional stability. Motivation for playing or training activities should be differentiated. Some players need additional motivation, which is conducted separately from the team and provides further success of the athlete [24]. Coaches need to take into account the mental, behavioral reactions of athletes and analyze which aspects of psychological training are worth paying attention to. The study showed that volleyball players of 14-16 years old respond better to internal motivation, such as satisfaction from the training process and self-development, as opposed to external stimuli, such as awards or recognition. The importance of coach influence on athletes' psychological resilience was also revealed. The athlete must understand that they must always obey the coach, not argue, not engage in unnecessary dialogues, not make excuses and not try to prove anything. His presentation, behavior, ability to skillfully master knowledge and skills and convey them to the trainees is the main task. Often, players, especially those of a young age, can adopt the manner of behavior, style of play, and even conversations from their coach, which plays a big role in the psychological preparation of an athlete. A coach must be enthusiastic, energetic, responsible, fair, and at the same time maintain the image of a demanding, fairly strict, and calm person. The coach plays a key role in building team spirit. Provide leadership that inspires and supports the team while creating a unified team. Therefore, psychological training for young athletes should be adapted to their age and individual characteristics, taking into account the balance between training load, education and personality development. In the process of educating and influencing the psychology of volleyball players, it is necessary to take into account the individual's personal interests, tastes, preferences, nature of training, etc.

The questionnaire responses of adult athletes showed a higher level of self-awareness and awareness of motivation, striving for goals such as professional growth or satisfaction from the game. The authority of the coach for players of this age category plays a key role in the formation of a successful team and individual development of players. A coach must be able to motivate players, ignite their passion for the game and help them overcome challenges. The ability to inspire the team and each player is key to enhancing a coach's credibility. A coach must create a positive and motivational environment that promotes team development and common goals. Players must understand why they are playing and what the coach expects of them. It is important to communicate with age players, listen to their ideas, and consider their needs and opinions on practice and game activities. It is also important to create healthy competition, which stimulates players' self-awareness by helping them identify their strengths and weaknesses [25-27].

As the experiment has shown, adult athletes are able to effectively cope with high pressure in competitive situations because they have more developed self-regulation skills and can effectively manage the stress associated with competition and high expectations. Each volleyball player who has already mastered professional skills has developed certain techniques for themselves to cope with stress. It is also found that athletes of the second group face more complex social dynamics in the team, requiring a high level of communication skills and the ability to work in a team.

Thus, it is supplemented the data of specialists that the effectiveness of team management largely depends on the coach, his ability to take into account the psychological characteristics of players and team structures. Pedagogical skill of the coach is determined by his ability to take into account and use the psychological characteristics of the players' personality and team structure in solving various tasks [19,21]. As practice shows, to develop team spirit, it is necessary to formulate common goals that should be clear, achievable and stimulating for all team members. This may include achieving a certain result in a competition, improving personal
performance, or developing collective skills. A positive and supportive environment should be provided. Establish an open and effective flow of communication within the team. Players should feel that their opinions matter and have the opportunity to discuss issues and ideas. When working with a team, you should always be prepared to work with different types of personalities. To do this, you can go on organized trips anywhere, spend time together outside of training, go to matches of different levels, or just get together to watch them. It is also useful to film your games and then conduct self-analysis together, analyzing all the game moments. Close, positive interactions between players, team events, and time spent together off the court help build trust and cohesion. After all, a team is the only mechanism that works 100% only when each member is fully committed to the work.

Thus, the effectiveness of sports activities is determined by the mental readiness of the athlete, so psychological training is carried out in close cooperation with physical, technical, and tactical training throughout the training process and is planned both for the team as a whole and for each player separately. It is aimed not only at preparing volleyball players for the next competition, but also at solving the tasks of sports improvement.

Conclusions

Psychological preparation plays a key role in creating optimal conditions for effective performance of volleyball players and increasing their success as an individual player and team as a whole. The coach needs to take into account the mental and behavioral reactions of the athletes, analyze which aspects of psychological preparation should be paid attention to.

Conflict of interest

The authors declare that there is no conflict of interest.

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Information about the authors

Iryna Sobko
sobko_iryna18@gmail.com
http://orcid.org/0000-0002-4920-9775
Department of Olympic and professional sports, sports games and tourism, H.S. SkovorodaKharkiv National Pedagogical University
Alchevskikhst. 29, Kharkiv, 61002, Ukraine

Fylypchenko Olena_
https://orcid.org/0009-0005-9741-7439
Elenafilipcenko926@gmail.com
Department of Olympic and professional sports, sports games and tourism, H.S. Skovoroda Kharkiv National Pedagogical University
Altshevskih str. 29, Kharkiv, 61002, Ukraine
Sobko Yana
https://orcid.org/0000-0002-5511-4561
sobkoyana4@gmail.com
National Technical University «Kharkiv Polytechnic Institute»;
2, Kyrpychovastr.,61002, Kharkiv, Ukraine

Інформація про авторів

Ірина Собко
http://orcid.org/0000-0002-4920-9775
sobko. iryna18@gmail.com
Кафедра олімпійського і професійного спорту, спортивних ігор та туризму
Харківський національний педагогічний університет імені Г.С. Сковороди,
вул. Алчевських 29, Харків, 61002, Україна

Олена Філіпченко
https://orcid.org/ 0009-0005-9741-7439
Elenafilipchenko926@gmail.com
Кафедра олімпійського і професійного спорту, спортивних ігор та туризму,
Харківський національний педагогічний університет імені Г.С. Сковороди
Вул. Алчевських, 29, Харків, 61002, Україна

Собко Яна
https://orcid.org/0000-0002-5511-4561
sobkoyana4@gmail.com
Національний технічний університет "Харківський політехнічний інститут";
вул. Кирилична, 2, 61002, м. Харків, Україна

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