

# Psychological factors influencing volleyball serving techniques in vocational college students

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**Abstract:** This paper takes volleyball specialty students from several higher vocational colleges in Tianjin as the research subjects and investigates the psychological factors affecting the serving technique of volleyball players in higher vocational colleges. Through surveys and analyses of teachers and students, the following conclusions are drawn: The majority of volleyball specialty students in Tianjin higher vocational colleges recognize the importance of psychological factors in volleyball competitions. The focus of their understanding of the role of psychological factors in volleyball matches varies, with the highest recognition rates being the stabilization of technical performance levels, enhancement of self-confidence, and improvement of adaptability on the court. The understanding of the role of positive psychological factors is not comprehensive, but most volleyball specialty students agree that serving technique affects the outcome of the match. The objective factors affecting the serving psychology of volleyball players in competitions are diverse, with the top three being the accelerated pace of scoring, shortened match duration, and changes in match rhythm. The proficiency in serving technique, lack of concentration, and poor emotional control are the objective factors that influence the serving psychology of volleyball players in competitions.

**Keywords:** Psychological factors, Volleyball, Serving technique

## 1. Introduction

Volleyball is a team sport that demands comprehensive technical skills. Due to the requirements of its technical rules, it is highly competitive. The performance of volleyball players' technical skills plays a crucial role in the entire match, and to a large extent, this performance depends on the individual psychological factors of the players. With the introduction of new volleyball competition rules, the means of scoring in matches have evolved from spiking and blocking to include serving, spiking, blocking, and opponents' errors. Therefore, serving technique must be given greater attention. The implementation of the rally-point scoring system has further highlighted the importance of serving technique in competitions. The normal performance of serving technique requires volleyball players to possess good psychological qualities during the match. In other words, good psychological factors are the basic guarantee and prerequisite for the normal performance of serving technique. This is especially true in the critical stages of a match, where psychological factors are often the key determinant of success. Players with good psychological qualities can perform their serving technique more stably, which not only helps to organize effective attacks and disrupt the opponents' rhythm but also boosts the morale of their team and puts psychological pressure on the opponents, leading to more errors from the opponents. Conversely, if players lack strong psychological qualities, their serving technique may be significantly affected under adverse match conditions, resulting in more serving errors. This not only leads to the loss of serving rights but also puts greater psychological pressure on the team members.

This study focuses on volleyball specialty students from several higher vocational colleges in Tianjin, including Tianjin Modern Vocational and Technical College, Tianjin Electronic Information College, Tianjin Sino-German Vocational and Technical College, Tianjin Maritime College, Tianjin Land and Resources Vocational College, and Tianjin Transportation Vocational College.

A survey questionnaire titled "The Impact of Psychological Factors on the Serving Technique of Volleyball Players in Higher Vocational Colleges During Matches" was designed. A total of 100 questionnaires were distributed, with 90 given to students. Of these, 83 were returned, resulting in a recovery rate of 92.2%, and 75 were valid, with an effective rate of 90.4%. Ten questionnaires were distributed to teachers, all of which were returned and found to be valid, with a recovery rate and effective rate of 100%.

## 2. Analysis of research results

### 2.1. The conceptual definition of psychological factors

Broadly speaking, human psychological factors encompass all the dynamic processes of mental activities, such as memory, reasoning, information processing, language, problem-solving, decision-making, and creative activities. The study of psychological factors is even more extensive, covering unique individual psychological characteristics and stable features of individual behavior; the control and influence of interpersonal behavior and social forces on actions; the neural mechanisms of physiological phenomena; different psychological characteristics of individuals at various developmental stages; and psychological phenomena related to behavior that exist in an individual's mind. Psychological quality is a stress response of a person to the external environment and has an important impact on other qualities. Together with other qualities, it constitutes an individual's comprehensive quality.

### 2.2. The importance of psychological factors in volleyball competitions

Table 1: Perception of the Importance of Psychological Factors in Volleyball Matches Among Specialized Students in Tianjin Higher Vocational Colleges (N=75)

	Very Important	Important	Neutral	Not Important	Very Unimportant
Number of Students	18	26	15	12	5
Percentage	24.0%	34.7%	20.0%	16.0%	6.7%

Through the use of a questionnaire survey, 76 volleyball specialty students from higher vocational colleges in Tianjin were investigated. It can be seen that the majority of these students recognize the importance of psychological factors in volleyball matches. However, there are still some students who believe that psychological factors are not important in volleyball competitions. This is mainly because: students specializing in volleyball at higher vocational colleges in Tianjin have an insufficient understanding of the importance of psychological factors during the competition process. They neglect the cultivation of psychological factors in their daily training and lack systematic training in this area. As a result, some volleyball specialty students have limited knowledge of psychological factors, leading to unstable psychological states and consequently affecting the performance of their serving techniques in volleyball matches.

### 2.3. Perception of the role of positive psychological factors in volleyball competitions

Table 2: Perception of the Role of Positive Psychological Factors in Volleyball Competitions (N=75)

	Improve adaptability on the court	Reduce errors	Focus attention	Stabilize technical performance level	Enhance confidence	Other
Number of students	42	32	27	56	46	16
Percentage	56.0%	42.7%	36.0%	74.7%	61.3%	21.3%

By analyzing the above table, it can be seen that volleyball specialty students in Tianjin higher vocational colleges have different focal points in their understanding of the role of psychological factors in volleyball competitions. The aspects with the highest recognition rates are stabilizing technical performance,

enhancing self-confidence, and improving adaptability on the court. This indicates that these students have an incomplete understanding of the role of positive psychological factors in volleyball matches. An incomplete understanding of psychological factors can affect their emphasis on these factors during competitions and is not conducive to the cultivation and training of psychological qualities in volleyball players. Therefore, coaches should integrate the actual training conditions of volleyball players and provide targeted psychological education and training. This will help players fully recognize the relationship between psychological factors and competitive performance, thereby improving their serving skills in matches.

#### 2.4. The impact of serving technique on volleyball matches

Table 3: Statistics on the Impact of Serving Technique on Volleyball Matches (N=75)

	Has a Significant Impact	Has a Minor Impact	Has No Impact
Number of Students	46	22	7
Percentage	61.3%	29.3%	9.3%

Currently, the main scoring techniques in volleyball matches include serving for points, spiking for points, blocking for points, and points gained from opponents' errors. Among these scoring techniques, the serving technique has become particularly important since the implementation of the rally-point scoring system, and it is also the focus of this study. A powerful serving technique can not only directly score points for the team but also effectively suppress the opponents' offensive rhythm, create transitions between attack and defense, and gain control of the match. This is crucial for boosting team morale and increasing the chances of winning. Whether vocational college volleyball players in China recognize its impact on the game is also one aspect of the survey analysis in this paper.

Through the use of a questionnaire survey, 75 volleyball specialty students from higher vocational colleges in Tianjin were investigated. It can be seen that the majority of these students believe that serving technique has an impact on the match, with only a minority thinking it has no impact. This indicates that most volleyball specialty students in Tianjin higher vocational colleges have recognized the importance of serving technique under the new rules. According to the rally-point scoring system, volleyball players will deeply appreciate the importance of serving technique during regular matches or training. Proficient and stable serving technique is the key to gaining control of the match and is a crucial aspect of winning. Therefore, coaches should place greater emphasis on serving technique in their daily teaching, guide volleyball players to increase the intensity of their serving practice, and improve the proficiency and stability of their serving technique.

#### 2.5. Psychological factors in successful serving for college volleyball players

In the training process of volleyball players, coaches need to not only enhance the players' physical fitness but also focus on strengthening their serving techniques. This is a practical requirement for improving the players' overall quality, as the rally-point scoring system demands a rapid adaptation to these changes. However, regardless of how strong a player's physical fitness or how proficient their serving technique is, if their psychological factors are not up to par, their overall performance will be significantly compromised. This is because the execution of serving techniques in competitions is closely related to psychological factors, which form the foundation and prerequisite for the effective display of technical skills. Although most coaches recognize this issue, they often neglect psychological training or lack a systematic approach to it in actual practice. Surveys of coaches reveal that the main reason is the absence of a systematic theory and teaching materials for psychological training. Many volleyball coaches are unsure how to implement such training, and some are deeply rooted in traditional teaching concepts, making it difficult to prioritize this area. In this study, the psychological factors of volleyball players during competitions are analyzed from both subjective and objective perspectives.

### 2.5.1. Objective factors

Table 4: Objective Factors Influencing Volleyball Players' Serving Psychology During Matches (N\_students=75, N\_coaches=10)

	Match Duration Shortened	Match Pace Changed	Faster Scoring Pace	Unfair Referee Decisions	Off-court Interference	Other
Student Count	31	21	42	17	11	19
Student Percentage	41.3%	28.0%	56.0%	22.7%	14.7%	25.3%
Coach Count	6	5	6	4	2	2
Coach Percentage	60.0%	50.0%	60.0%	40.0%	20.0%	20.0%

In volleyball matches, players are easily distracted by external factors such as the audience and referees. These factors can cause significant psychological fluctuations, affecting the stability of their serving technique. Therefore, strengthening the psychological training of volleyball players' serving skills is a practical necessity to improve their psychological factors.

Through the analysis of the data tables, it can be seen that the objective factors affecting the serving psychology of volleyball players in higher vocational colleges during matches are diverse. The top three factors are the accelerated pace of scoring, shortened match duration, and changes in match rhythm. The survey found that this is mainly because: during the match, if points are scored or lost too quickly, it creates significant psychological pressure on the players, making them hesitant to use more aggressive serving techniques. This is especially true in critical stages or when the score is tied, where players tend to be overly cautious, prioritizing stability over aggression to minimize serving errors. However, while ensuring the stability of their serves, they inadvertently reduce the aggressiveness of their serving technique, thereby affecting its overall performance. The shortened match duration and changes in match rhythm can lead to impatience among players, which in turn affects their serving accuracy and prevents them from performing their serving technique effectively.

### 2.5.2. Subjective factors

Table 5: Subjective Factors Influencing Volleyball Players' Serving Psychology During Matches (N\_students=75, N\_coaches=10)

	Serving Technique Proficiency	Lack of Major Competition Experience	Inability to Concentrate	Lack of Confidence	Psychological Tension	Poor Emotional Control	Other
Student Count	61	11	37	21	13	34	15
Student Percentage	81.33%	14.7%	49.3%	28.0%	17.3%	45.3%	20.0%
Coach Count	7	4	2	2	5	3	1
Coach Percentage	70.0%	40.0%	20.0%	20.0%	50.0%	30.0%	10.0%

By analyzing the table above, it is evident that students in higher vocational colleges in Tianjin consider the objective factors affecting the serving psychology of volleyball players during matches to be diverse. The top three factors identified by students are the proficiency in serving technique, lack of concentration, and poor emotional control. In contrast, the top three objective factors identified by coaches are the proficiency in serving technique, psychological tension, and poor emotional control.

During matches, the psychological state of athletes while serving has a significant impact on the stability of their serving technique. Factors such as unproficient serving techniques, lack of experience, and external distractions can lead to psychological imbalances in athletes, which greatly affect the serving performance

of volleyball players in higher vocational colleges. Therefore, it is essential to incorporate psychological training into the regular practice routine of volleyball players to enhance their mental resilience and overall performance.

### 3. Suggestions

Coaches should integrate the actual training conditions of volleyball players and provide targeted psychological education and training to enhance their mental toughness. This will help players fully recognize the relationship between psychological factors and competitive performance, thereby improving their serving skills in matches.

During regular training, coaches should create a tense atmosphere to enhance players' emotional control, adaptability to pressure, and ability to concentrate. Strengthening these psychological factors will positively promote the improvement of players' serving skills in competitions.

Additionally, coaches should focus developing on the strong willpower of volleyball players. This will help improve their adaptability on the court and cultivate a calm and composed character, which in turn will enhance their serving skills.

### 4. Conclusion

The majority of volleyball specialty students in higher vocational colleges in Tianjin recognize the very important role of psychological factors in volleyball competitions.

Volleyball specialty students in higher vocational colleges in Tianjin have different focal points in their understanding of the role of psychological factors in volleyball matches. The aspects with the highest recognition rates are stabilizing technical performance, enhancing self-confidence, and improving adaptability on the court. Their understanding of the role of positive psychological factors is not comprehensive.

Most volleyball specialty students in higher vocational colleges in Tianjin believe that serving technique has an impact on the match, with only a minority thinking it has no impact. The majority have recognized the importance of serving technique under the new rules. The objective factors affecting the serving psychology of volleyball players during matches are diverse. The top three are the accelerated pace of scoring, shortened match duration, and changes in match rhythm.

Students in higher vocational colleges in Tianjin consider the objective factors affecting the serving psychology of volleyball players during matches to be diverse. The top three are the proficiency in serving technique, lack of concentration, and poor emotional control. Coaches consider the top three objective factors to be the proficiency in serving technique, psychological tension, and poor emotional control.

### 5. References

- [1] Zhang Sha. A Preliminary Analysis of the Impact of Psychological Factors on Serving Techniques in Volleyball Competitions [M]. In: Research Collection on the Development of School Physical Education in Yunnan, 2012: 65-66.
- [2] Zhu Ronghui. The Impact of Psychological Factors on Serving Success Rate in Volleyball Competitions and Training Methods [J]. Journal of Mudanjiang University, 2007, (4): 23-28.
- [3] Tan Gang. Psychological Factors Affecting Volleyball Players in Competitions and Their Regulation Methods [J]. Network Wealth, 2010, (1): 85-86.
- [4] Huang Hansheng. Ball Games—Volleyball [M]. Beijing: Higher Education Press, 2009: 245-267.
- [5] Guo Chunyan, Zhao Peijun. The Requirements for Cultural Learning of Adolescent Athletes in China During Social Transformation [J]. Journal of Chengdu Education College, 2005, (4): 66.
- [6] Tang Linfang. Analysis of the Current Status and Countermeasures for Cultural Studies of High-Level Sports Teams at Wuhan Institute of Physical Education [D]. Master's Thesis of Wuhan Institute of Physical Education, 2007: 103-105.