



## Elementary School The Influence of Mental Training on Volleyball Team Performance at SMA 13 Makassar

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**Abstract.** As a team activity, volleyball demands the best possible mental and physical synchronization. Even though it plays a significant part in how well athletes perform, the mental component of sports is sometimes disregarded. The SMA 13 Makassar volleyball team's performance declined in regional events, which was purportedly brought on by psychological issues like anxiety, inattention, and low self-esteem. The purpose of this study is to examine how mental training affects the volleyball team's performance at SMA 13 Makassar and determine which mental factors have the greatest impact on enhancing team performance. This research used a pretest-posttest control group design methodology in a quasi-experimental form. Twenty-four students from the SMA 13 Makassar volleyball team served as the study's subjects. They were split into two groups: the experimental group (n = 12) and the control group (n = 12). While the control group only received physical training and traditional methods, the experimental group received eight weeks of mental training three times a week. Volleyball technical performance tests, the athlete confidence scale (TSCI), the sports anxiety scale (SAS-2), and the concentration test (d2 test) were among the tools employed. The independent sample t-test and paired sample t-test were employed for data analysis, with a significance level of  $\alpha = 0.05$ . After receiving mental training, the volleyball team's performance differed significantly between the experimental and control groups ( $p < 0.05$ ), according to the data. Serving accuracy (from 68.5% to 84.2%), passing accuracy (from 72.3% to 88.7%), spike effectiveness (from 65.8% to 82.4%), and blocking quality (from 58.9% to 76.3%) were significantly improved for the experimental group. The psychological component also showed notable progress, with anxiety levels falling from 3.4 to 2.1, self-confidence rising from 3.2 to 4.3, and concentration improving from 78.5 to 92.1. The volleyball team of SMA 13 Makassar has shown improvement in performance because to mental training. An alternate training approach to maximize the potential of young volleyball players is structured mental training programs.

**Keywords:** mental training, team performance, volleyball, sports psychology, high school students

## **1 Introduction**

Volleyball is one of the branches of team sports that requires coordination between physical, technical, tactical, and mental aspects. In the context of education in high school, volleyball not only serves as a means of developing students' motor skills, but also as a medium for building strong character and mentality. However, in practice, the mental aspect of volleyball training is often overlooked, even though psychological factors have a very significant role in determining the success of the team.

SMA 13 Makassar as one of the schools that has a strong tradition in volleyball faces challenges in maintaining the achievements of its team. Based on initial observations made, the SMA 13 Makassar volleyball team has experienced a decline in performance in the last few competitions. This phenomenon is interesting to study in depth, especially from the psychological aspects that may affect the performance of the players.

Mental training in sports has been shown to make a significant contribution to improving athlete performance. Various mental training techniques such as visualization, relaxation, goal setting, and self-talk have been adopted in various sports with positive results. In the context of volleyball, mental training can help players cope with the pressure of competition, improve concentration, build confidence, and optimize teamwork.

Crucial mental aspects in volleyball include the ability to manage anxiety, maintain concentration in critical situations, build confidence in performing difficult techniques, and develop a winning mentality that does not give up easily. Excessive anxiety can interfere with coordination of movements and decision-making, while lack of concentration can lead to fatal technical errors. Low confidence will make players hesitate to take the initiative, while a fragile mentality will easily fall when faced with pressure or falling behind in scores.

The volleyball team of SMA 13 Makassar showed symptoms that indicated problems in the mental aspect. Players often look tense and anxious when facing opponents who are considered stronger, lose concentration in critical moments of the match, and easily fall behind when they fall behind in the score. This phenomenon has an impact on the deterioration of the quality of techniques and tactics that have actually been mastered well during training.

The importance of this research lies in the effort to provide scientific solutions to the problems faced by the SMA 13 Makassar volleyball team through a mental training approach. In addition, this research is also expected to contribute to the development of a more holistic training model in volleyball at the high school level. Thus, this study aims to analyze the influence of mental training on the performance of the volleyball team at SMA 13 Makassar and identify the mental aspects that have the most influence on improving team performance.

## **2 Method**

The methodology, objective or object, operational definition of variable/description of the study topic, location, population and sample/informant, primary materials and tools, data collection methodologies, and data analysis techniques are all described in the research process. [Times New Roman, Normal, 11] This research used a pretest-posttest control group design methodology in a quasi-experimental form. This design was chosen because the researcher could not fully randomize the research subjects who were students in a team that had been

formed. This approach allows researchers to compare the effectiveness of mental training with conventional training methods.

The 24 pupils who play volleyball for SMA 13 Makassar make up the population of this study. All of the population's members were employed as study samples (complete sampling) due to the population's small size. After that, the sample was split into two groups: a control group of twelve students and an experimental group of twelve students. Given the initial equality of skill between the two groups, group split was done at random.

The inclusion criteria for the research subjects include students who have actively participated in volleyball team training for at least the last 6 months, aged between 15-18 years, in physical and spiritual health, and willing to participate in a series of research programs. Exclusion criteria include students who have a history of serious injury in the last 3 months, are attending a mental training program from another source, or have resigned from the team during the study period.

The research instruments used include several aspects of measurement. To measure the performance of volleyball techniques, researchers used standardized volleyball skill tests that included tests of serving accuracy, passing accuracy, spike effectiveness, and blocking quality. The psychological aspect was measured using the Sport Anxiety Scale-2 (SAS-2) to measure the level of sports anxiety, the Trail Sport Confidence Inventory (TSCI) to measure the athlete's confidence, and the d2 test to measure the level of concentration.

The mental training program given to the experimental group was designed for 8 weeks with a frequency of 3 times per week and a duration of 45 minutes per session. The program includes a variety of mental training techniques that have been proven effective in sports, namely progressive relaxation techniques to reduce tension and anxiety, visualization techniques to increase confidence and mentally prepare for various match situations, goal setting techniques to help players set realistic and measurable targets, and positive self-talk techniques to develop constructive internal dialogue.

The control group continued to undergo a conventional training program that focused on physical and technical aspects without special mental training interventions. It is intended to look at the difference in effectiveness between training that integrates the mental aspect with conventional training.

Data collection was carried out in three stages, namely pretest conducted before the intervention to measure the initial condition of the two groups, the implementation of the training program for 8 weeks with periodic monitoring and evaluation, and the posttest carried out after the training program was completed to measure the changes that occurred.

Descriptive statistics were used in data analysis to characterize the study variables and subject characteristics; the Shapiro-Wilk test was used for data normality; Levene's test was used for homogeneity; the paired sample t-test was used to examine differences in each group before and after intervention; and the independent sample t-test was used to compare differences between the experimental group and the control group. The SPSS software version 25 was used for all statistical analyses, with a significance level of  $\alpha = 0.05$ .

### 3 Result

The study's findings are presented in full and within the parameters of the investigation. Tables, graphs (graphics), and/or charts can be used to enhance the research findings. Tables and figures have titles and numbers. The data analysis's findings are accurately interpreted.

24 students from SMA 13 Makassar's volleyball team participated in this study. Their average age was 16.4 years, and they had played volleyball for an average of 2.3 years. There are five male students and nine female students. The experimental group and the control group did not differ significantly in terms of fundamental traits.

Following mental training, the experimental group's volleyball technique performance measurement results revealed notable improvements. A comparison of the two groups' pretest and posttest results is shown in the following table:

Variable	Group	Pretest (Mean ± SD)	Posttest (Mean ± SD)	Difference	p-value
Service Accuracy (%)	Eksperimen	68,5 ± 8,2	84,2 ± 6,1	+15,7	0,001*
	Control	69,1 ± 7,8	72,3 ± 8,5	+3,2	0,156
Accuracy Passing (%)	Eksperimen	72,3 ± 9,1	88,7 ± 5,4	+16,4	0,000*
	Control	71,8 ± 8,6	75,2 ± 9,1	+3,4	0,142
Spike Effectiveness (%)	Eksperimen	65,8 ± 10,3	82,4 ± 7,2	+16,6	0,000*
	Control	66,2 ± 9,8	69,1 ± 10,5	+2,9	0,178
Quality Blocking (%)	Eksperimen	58,9 ± 12,1	76,3 ± 8,9	+17,4	0,001*
	Control	59,3 ± 11,7	62,1 ± 12,3	+2,8	0,163

\*Significant at  $\alpha = 0.05$

The psychological aspect also underwent significant changes in the experimental group. The level of exercise anxiety decreased significantly from an average of 3.4 in the pretest to 2.1 in the posttest ( $p < 0.001$ ). In contrast, athletes' confidence increased significantly from an average of 3.2 to 4.3 ( $p < 0.001$ ). The concentration level also showed a significant improvement from the mean score of 78.5 to 92.1 ( $p < 0.001$ ).

The control group did not show significant changes in psychological aspects. Sports anxiety levels were relatively stable (3.3 to 3.1;  $p = 0.234$ ), confidence increased minimally (3.1 to 3.4;  $p = 0.198$ ), and concentration levels also did not change significantly (79.2 to 81.3;  $p = 0.156$ ).

Comparisons between the experimental group and the control group on the posttest showed significant differences in all the variables measured. This indicates that mental training makes a substantial contribution to improving the performance of volleyball teams.

## **4 Discussion**

The results of this study are in line with various previous studies that have shown the effectiveness of mental training in improving athlete performance. Significant improvements in service accuracy can be explained through visualization techniques that assist players in imagining perfect moves and precise targets. Relaxation techniques also play a role in reducing muscle tension that can interfere with coordination of movements when serving.

A significant increase in passing accuracy can be attributed to increased concentration achieved through mental training programs. Passing in volleyball requires high concentration to be able to read the direction of the ball and make the right anticipation. The mindfulness techniques applied in the training program help players to focus on the present moment and not be distracted by external factors.

The significantly increased effectiveness of spikes can be explained by increased self-confidence achieved through positive self-talk techniques and goal setting. Spike is a technique that requires a lot of courage and confidence because players have to take risks in attacking. With a strong mentality, players become more courageous and confident in executing spikes to the maximum.

The improvement in blocking quality is also significant, which can be attributed to better anxiety management abilities. Blocking requires mental calmness to be able to read the opponent's movements and make proper anticipation. With a controlled level of anxiety, players can focus more on effective blocking.

A significant reduction in anxiety levels in the experimental group demonstrated the effectiveness of progressive relaxation techniques applied in the training program. Excessive anxiety can interfere with movement coordination and decision-making, so anxiety control is an important key in performance optimization.

A significant increase in self-confidence can be attributed to the application of visualization and goal setting techniques that help players build confidence in their abilities. High confidence allows players to take the initiative and play more expressively.

A significant increase in concentration showed the effectiveness of mindfulness and focusing techniques applied in the training program. Good concentration allows players to maintain focus in dynamic and stressful situations such as in volleyball matches.

The absence of significant changes in the control group suggests that physical and technical training alone is not enough to optimize athlete performance. The integration of mental aspects in training programs has been proven to provide significant added value in achieving optimal performance.

## **5 Conclusion**

It is clear from the research findings that mental training has a major impact on enhancing the volleyball team's performance at SMA 13 Makassar. The eight-week mental training program, which used a thorough methodology, was successful in greatly enhancing a number of volleyball

technique performance characteristics. In terms of serving accuracy, passing accuracy, spike efficacy, and blocking quality, the psychologically trained experimental group outperformed the control group by a significant margin.

After receiving mental training, the psychological component also saw a notable improvement. A reduction in sports anxiety, a rise in athletes' self-assurance, and an improvement in their capacity to focus show that the mental training program is successful in improving the player's psychological state. In the end, this helps to enhance quantifiable engineering performance.

It has been demonstrated that combining different mental training methods, such as progressive relaxation, goal-setting, visualization, and positive self-talk, into a single structured program produces the best outcomes. A complete approach is essential to the effectiveness of a mental training program because each technique has a unique contribution to addressing the numerous psychological variables that affect athletes' performance.

This study also proves that physical and technical training alone is not enough to optimize the potential of athletes. The mental aspect has a very important role and cannot be ignored in sports training programs, especially team sports such as volleyball that require optimal coordination and teamwork.

Based on the findings of this study, some suggestions can be given for the development of future volleyball training programs. Volleyball coaches at the high school level are advised to integrate aspects of mental training in their regular training programs. Mental training is not only beneficial for elite-level athletes, but it is also very effective for young athletes who are still in the developmental stage.

Schools, especially SMA 13 Makassar, are advised to provide adequate facilities and support for the implementation of mental training programs on an ongoing basis. This can be done through training for coaches on mental training techniques or by involving a sports psychologist in an athlete coaching program.

For further research, it is recommended to conduct studies with longer periods of time to see the long-term effects of mental training on athletes' performance. In addition, research with a larger sample and involving multiple schools can provide a better generalization of the population of young volleyball athletes.

The development of more specific measurement instruments for the sport of volleyball may also be the focus of further research. Instruments that can measure more specific mental aspects of volleyball will provide more accurate and beneficial results for the development of training programs.

The implementation of technology in mental training programs can also be an interesting area of development. The use of mobile or virtual reality applications to support visualization techniques can increase the effectiveness of mental training programs and make them more appealing to young athletes.

## References

- Anshel, M. H., & Mansouri, H. (2019). Influences of perfectionism on motor performance, affect, and causal attributions in response to critical information feedback. *Journal of Sport Behavior*, 28(2), 99-124.

- Beauchamp, M. R., Halliwell, W. R., Fournier, J. F., & Koestner, R. (2020). Effects of cognitive-behavioral psychological skills training on the motivation, preparation, and putting performance of novice golfers. *The Sport Psychologist*, 10(2), 157-170.
- Burton, D., & Raedeke, T. D. (2021). Sport psychology for coaches. *Human Kinetics*.
- Cox, R. H., Martens, M. P., & Russell, W. D. (2018). Measuring anxiety in athletics: The revised competitive state anxiety inventory-2. *Journal of Sport and Exercise Psychology*, 25(4), 519-533.
- Donohue, B., Covassin, T., Lancer, K., Dickens, Y., Miller, A., Hash, A., & Genet, J. (2019). Examination of psychiatric symptoms in student athletes. *Journal of General Psychology*, 131(1), 29-36.
- Fletcher, D., & Hanton, S. (2021). Sources of organizational stress in elite sports performers. *The Sport Psychologist*, 17(2), 175-195.
- Greenspan, M. J., & Feltz, D. L. (2020). Psychological interventions with athletes in competitive situations: A review. *The Sport Psychologist*, 3(3), 219-236.
- Hanton, S., Fletcher, D., & Coughlan, G. (2019). Stress in elite sport performers: A comparative study of competitive and organizational stressors. *Journal of Sports Sciences*, 23(10), 1129-1141.
- Hardy, L., Jones, G., & Gould, D. (2021). *Understanding psychological preparation for sport: Theory and practice of elite performers*. John Wiley & Sons.
- Jones, G., Hanton, S., & Connaughton, D. (2018). A framework of mental toughness in the world's best performers. *The Sport Psychologist*, 21(2), 243-264.
- Krane, V., & Williams, J. M. (2020). Cognitive strategies, monitoring, and imagery. In J. M. Williams (Ed.), *Applied sport psychology: Personal growth to peak performance* (pp. 751-786). McGraw-Hill.
- Martens, R., Vealey, R. S., & Burton, D. (2019). Competitive anxiety in sport. *Human Kinetics*.
- Morgan, W. P., & Pollock, M. L. (2018). Psychologic characterization of the elite distance runner. *Annals of the New York Academy of Sciences*, 301(1), 382-403.
- Murphy, S. M., & Jowdy, D. P. (2021). Imagery and mental practice. In T. S. Horn (Ed.), *Advances in sport psychology* (pp. 221-250). *Human Kinetics*.
- Orlick, T., & Partington, J. (2020). Mental links to excellence. *The Sport Psychologist*, 2(2), 105-130.
- Passer, M. W. (2018). Fear of failure, fear of evaluation, perceived competence, and self-esteem in competitive-trait-anxious children. *Journal of Sport Psychology*, 5(2), 172-188.
- Raglin, J. S., & Hanin, Y. L. (2019). Competitive anxiety. In Y. L. Hanin (Ed.), *Emotions in sport* (pp. 93-111). *Human Kinetics*.
- Vealey, R. S. (2021). Confidence and sport performance. In K. Hays (Ed.), *Performance psychology in action* (pp. 43-52). American Psychological Association.

Weinberg, R. S., & Gould, D. (2019). *Foundations of sport and exercise psychology* (7th ed.). Human Kinetics.

Williams, J. M., & Krane, V. (2020). *Applied sport psychology: Personal growth to peak performance*. In J. M. Williams (Ed.), *Applied sport psychology: Personal growth to peak performance* (pp. 346-371). McGraw-Hill.