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The effect of eyes closed tennis service trainings on the target service in volleyball

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Abstract

The study aimed to examine the effect of service trainings performed with eyes closed on the target service success percentage in volleyball players. The study was carried out with 22 volunteer male volleyball players. The volleyball half court was divided into six zones, each zone with a distance of 3 meters. In the trainings, the athletes were asked to serve 10 to each predetermined target zone with their eyes tied with a black eye patch. In the pre-test and post-test application, following the appropriate warm-up process, the athletes were asked to serve 20 to each zone with their eyes open. For the statistical analysis of the data obtained, SPSS 21.0 package program was used. In the evaluation of the data; descriptive statistics, non-parametric Wilcoxon signed-rank test and Friedman test were used. $P<0.05$ was accepted for statistical significance. As a result of the applications performed, it was found that the difference between the pre-test and post-test service success percentages in the zones 1, 2, 3, 4 and 6 was significant. In the post-test values, the percentages of the total serve into the zones were higher than the pre-test serve percentages. In the applications, the percentage distribution of the serve with eyes closed was found to be higher according to the days. The service percentage values in the first and last training sessions increased significantly. As a result, it was determined that the service trainings performed with eyes closed affected the success percentage in the service.

Keywords: Volleyball; eyes closed training; service

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1. Introduction

1.1. Introduce the problem

Service is the only skill in volleyball where the player has complete control of the ball over all the factors such as positioning, speed and orbit. The aim of service, which is one of the six fundamental skills in volleyball, is to put the ball into play to the minimum extent and score a point to the maximum extent. The easiest way to score a point is to make a challenging the serve (Reynaud, 2011). The service strategy usually targets the opponent's weakest point or the gap between two players. A missed service does not only eliminate the team's chance to serve but also gives the opponent a point and the right to serve (Dearing, 2018). For this reason, the efficiency of the service and its impact on the whole match is extremely high. Therefore, it is a very important component in the training of beginner and advanced volleyball players.

An effective server must develop both strength and the ability to serve to a specific zone. Silva et al.(2014) emphasized the importance of point service in determining the win and indicated that it surprisingly prevented mistakes. Service practices are required to be repeated a lot in order to develop skills and increase performance. In addition to the frequency of the applications, which training method is used is also deemed important for skill development and increasing performance. There are also studies revealing that visualizing physical training and movement in mind without practice increase performance (Özdal et al., 2013; Ay et al., 2013; Gaggioli et al., 2013). For example, Olympic-level skiers mentally trek through the bends and turns of an entire ski slope with their eyes closed before starting their downhill. Mental visualization can be beneficial in improving bodily movements (Lanners, 2015). On the other hand, despite the fact that eyes closed training, in which physical training and mental visualization techniques are used synchronously, has been widely used in individual sports for decades in terms of both skill development and performance development (Smirnov et al., 2019; Hutt, & Redding, 2014), it has not been used much in team sports.

Through eyes closed training, the visual sense is ignored and the total amount of sensory input is reduced (Rusin, 2017). This situation teaches athletes to focus more on their senses and adjust their kinesthetic senses so as to control their movements by enabling them to direct their attention to body movements (Hutt & Redding, 2014). Kinesthesia or proprioception is the sensation of the individual's own bodily perception. Without it, we would not be able to walk in the dark and coordinate our actions, or we would not even stand. Kinesthetic sensations are integrated with the signals from the proprioceptors in muscles, tendons and joints (Proske& Gandevia, 2012). Eyes closed training helps to adjust the mind-muscle connection. It can be expressed that after learning to use the motor controls of the eyes closed service movement, the eyes will be

brought back to the open variations, which result in significantly higher proprioceptors and better mechanics because eyes closed training forces the muscle spindles and other proprioceptive mechanisms to work overtime in order to stabilize movement and control load. In other words, it teaches to rely on kinesthetic awareness (Seedman, 2020).

The proprioceptive sense can be thought to play a significant role in the sports world since it is the sense that allows to acknowledge where and what time each part of the body is positioned when the individuals close their eyes. For example, when a person closes his/her eyes and tries to stand on one foot, (s)he may observe that his/her leg muscles contract and relax so as to maintain balance. It can also be said that when a person runs without looking at his/her feet, or hits the ball without focusing on the racket or serves without looking at his/her arm, (s)he uses his/her sense that is so-called as proprioception (Wong, 2012).

In the current study, volleyball players, whose eyes were tied with a black eye patch, were asked to direct their attention to body movements and apply tennis service, which is a technique they already know, by using the visualization technique. From this point of view, the aim of the study was to examine the efficiency of serving with their eyes closed as a new application method that could improve tennis service practices in volleyball.

2. Method

2.1. Participant (subject) characteristics

22 male volleyball players aged between 18-25 who had been playing volleyball for at least 7 years and playing in the regional league in Afyonkarahisar province voluntarily participated in the study. The study was carried out in accordance with the principles of the Declaration of Helsinki. The volleyball players included in the study were informed about the study and the necessary permission was obtained by signing the informed consent form.

2.2. Data Collection

The volleyball half court was divided into 6 equal zones, 3 meters apart from one another, 4.5 meters in front of the service line, parallel to the service line and perpendicular to the service line. The position numbers in volleyball (1-6-5-4-3-2) were given to the 6 divided zones. Before starting the 30-day training period (pre-test) and after the 30-day training period (post-test), the athletes were asked to hit 20 tennis services to each zone(1-6-5-4-3-2)with their eyes open. Besides, on the first, tenth and twentieth days of the study, they were asked to hit 20 tennis services to each zone (1-6-5-4-3-2) with their eyes closed. After each 20 service process, each athlete was given a 3-minute break. The services that hit and did not hit the desired zone were reported to the

athlete and recorded simultaneously. Two days after the pre-test was performed, the tennis service study with their eyes closed was initiated. The eyes of the volleyball players who got to the service line were eyes closed with a black eye patch. The athletes standing at any point they wished on the service line were asked to focus on the zone in which they would serve and practice the service without the ball. They were made to do this practice for 10 minutes prior to each process. Following the practice period without the ball, the athletes whose eyes were closed were asked to hit 10 tennis services to each zone (1-6-5-4-3-2), respectively. Support was received from a guide so as to give the ball to the athletes and set their posture aright. After each service, the athlete was told whether the service was accurate or not. After each 10 service process, the athlete was given a 2-minute break.

2.3. Data Analysis

For the statistical analysis of the data, SPSS 21.0 package program was used. In the evaluation of the data; descriptive statistics, non-parametric Wilcoxon signed-rank test and Friedman test were used. $P<0.05$ was accepted for statistical significance.

3. Results

The results of the analysis regarding the effect of the service trainings performed with eyes closed on the target service were shown in Table 1.

Table 1. Findings of the effect on point service of eyes closed tennis service training

The Zones		$\overline{X}$	SS	t	p
Number 1	Pre-test	13,00	2,99	-3,078	,006
	Post-test	15,82	2,30		
Number 2	Pre-test	10,09	2,28	-10,003	,000
	Post-test	15,36	2,23		
Number 3	Pre-test	12,09	2,91	-7,350	,000
	Post-test	15,73	2,51		
Number 4	Pre-test	13,36	2,06	-4,695	,000
	Post-test	15,73	1,80		
Number 5	Pre-test	14,00	2,04	-2,748	,012
	Post-test	15,45	2,63		
Number 6	Pre-test	14,18	2,57	-3,548	,002
	Post-test	16,55	1,33		

Total Target Service	Pre-test	76,73	8,95	-11,095	,000
	Post-test	94,64	7,18		

According to the findings in Table 1, the difference between pre-test and post-test point service success percentages in the zones 1, 2, 3, 4 and 6 were significant ($p<0.05$). Despite the increase in the percentage of the pre-test and post-test services hit in zone 5, the difference was not significant. In the post-test values, the percentages of the total services hit into the zones were higher than the pre-test service percentages. The graphical distribution of the averages over the target service of the service trainings performed with eyes closed were as follows.

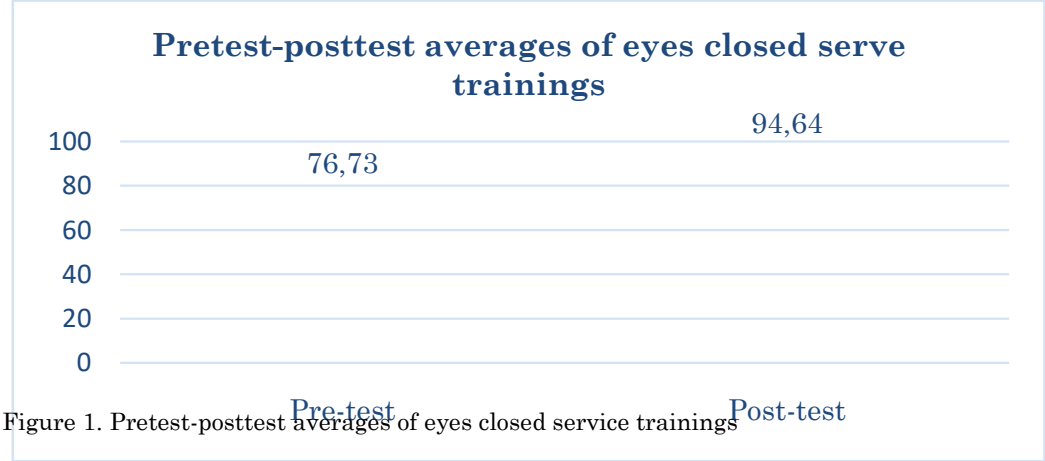


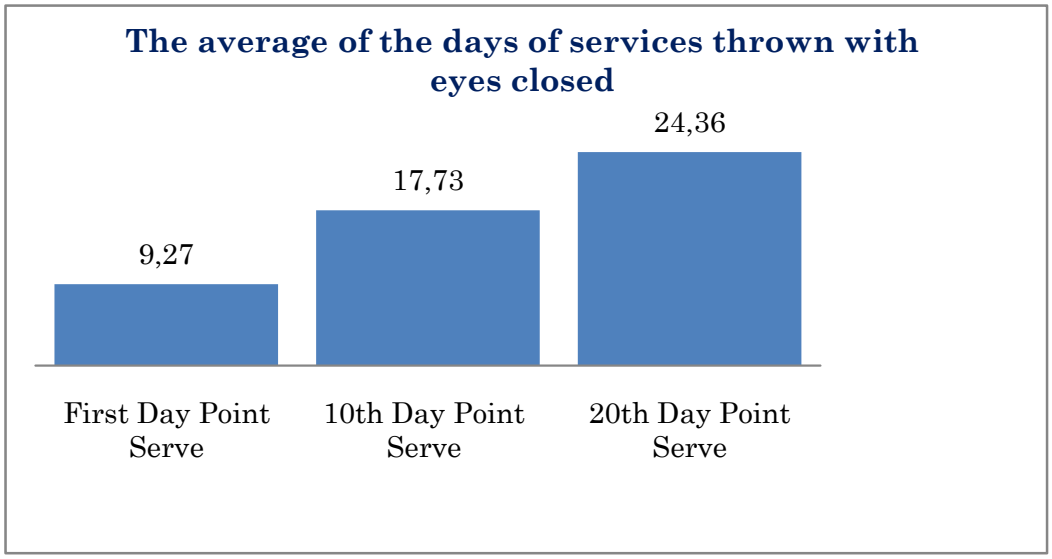
Figure 1. Pretest-posttest averages of eyes closed service trainings

The findings regarding the services hit with eyes closed according to days were shown in Table 2.

Table 2. The findings regarding the services hit with eyes closed according to days

with eyes closed	n	$\overline{X}$	SS	F	p
First Day Point Service	22	9,27	4,70		
10th Day Point Service	22	17,73	6,28	49,122	,000
20th Day Point Service	22	24,36	7,56		

The target service percentage distributions of the services hit with eyes closed every day for 1-month period were found to be high. In other words, the services hit with eyes closed had a positive effect on the ball in terms of finding the target. The graphical distribution of the averages regarding the services hit with eyes closed according to days were as follows.



4. Discussion

The purpose of this study was to determine the effect of service trainings performed with eyes closed on the target service success percentage in volleyball players. No other research has been found to report a training program effectiveness performed with eyes closed on the target service effectiveness of volleyball players. According to the findings of the research, the difference between the pre-test and post-test point service success percentages in the zones 1, 6, 4, 3 and 2 was found to be significant. In the studies, the percentage distribution of the target services regarding the services hit with eyes closed according to days was found to be high. These results suggest that the 30-day service trainings with eyes closed can improve target service percentage.

Reducing the total amount of sensory input by ignoring the visual senses helps to improve mental sharpness and focus the attention (Rusin, 2017). Seeing the exercises from the eye of the mind positively affects skill development (Rosenbaum, 2020) and allows athletes to focus more on their senses and adjust their kinesthetic senses in order to control their movements (Hutt, & Redding, 2014). The kinesthetic sense plays an important role in movement practice. So as to be able to begin developing kinesthesia, it is necessary to close the eyes and direct the attention to bodily balance. This provides better coordination to improve kinesthesia. Another issue in terms of highly coordinated movement is visualization (Lanners, 2015). Hutt and Redding (2014) aimed to evaluate the effect of the dance training program they applied on the dancers with eyes closedon proprioceptive mechanisms. Their study revealed that throughthe training with their eyes closed, the dancers could be trained so that they adopted proprioceptive strategies in

order to maintain dynamic balance. Piepiora et al. (2017), who applied mental visualization training to karate shotokan athletes, reported that there was a tendency towards positive effects in the athletes after the training. In another study, a tape was recorded in which a basketball player shot accurately to improve his free throw percentage. The player was asked to watch this tape before the training and the match, and imagine making accurate shots with his eyes closed. In this study, it was observed that the player missed only one free throwall over the season as a result of focusing on the correct shot (Sklare, 1997).

Eyes closed training, in which both physical training and visualization techniques are used synchronously, is widely used in individual sports (Smirnov et al., 2019; Hutt& Redding, 2014). However, no information could be found in the literature in terms of the fact that it is used in team sports. On the other hand, there are studies in the literature involvingthe mental trainings performed in order to increase the impact power of physical training. For example, Ayet al. (2013) determined that learning and developing the motor skills in volleyball through both physical and mental trainings improved motor skill performance more than the physical training performed alone, and found that more effective results could be obtained when both methods were included in the training program. Ozdal et al. (2013) reported that in the development of the shooting skills in football,the application of both the physical and mental training together was more effective than the application of the physical or mental training separately. Gaggioli et al. (2013) revealed that the combined mental and physical training performed in order to improve the motor performance in basketball increased performance. Shackell and Standing (2007) determined that the increase in strength between the mental and physical trainingsof the groupswas similar in football, basketball and rugby players, which they divided into 3 groups as the mental and physical training group and control group.

Conclusions

The current study revealed that the services performed with their eyes closed could improve the target service percentage. The study conducted in order to improve the target service percentage of the volleyball players seems rational, as closing the eyes provides better coordination to improve kinesthesia. For this reason, the use of the service training with eyes closed in weekly training programs may be encouraged because of its potential to improve the target service percentage.

Future Research

In this study, the pre-test and post-test values of the eyes closed service training with a single group were taken. In future studies, a test group that performs the service training with eyes open can be added into the group that is involved in the service training with eyes closed. In future research, the applications can be performed with the

players of different ages and genders, and playing in different leagues in order to increase the generalizability of this method.

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References

Ay, K., Halaweh, R., & Al-Taieb, M. (2013). The effect of movement imagery training on learning forearm pass in volleyball. *Education*, 134(2), 227-239.

Barth K., & Linkerhand A. (2007). Training Volleyball. Oxford: Meyer & Meyer Sport (UK) Ltd., ISBN 978-1-84126-211-6.

Charmaine T. (2020). Muscle Memory: Where does it come from and how does it work? Understanding proprioception and kinaesthesia in dance, October.

Dearing J. (2018). Volleyball Fundamentals. Champaign, Illinois: Human Kinetics, Second Edition.

Gaggioli, A., Morganti, L., Mondoni, M., & Antonietti, A. (2013). Benefits of combined mental and physical training in learning a complex motor skill in basketball.

Hutt, K., & Redding, E. (2014). The effect of an eyes-closed dance-specific training program on dynamic balance in elite pre-professional ballet dancers: a randomized controlled pilot study. *Journal of Dance Medicine & Science*, 18(1), 3-11.

Lanners T. (2015). With Our Eyes Closed. N.C.T.M.

Lidor, R. (2009). Free throw shots in basketball: Physical and psychological routines. In Psychology of sport excellence, Edited by: Tsung-Min Hung, E., Lidor, R. and Hackfort, D. 53–61. Morgantown, WV: Fitness Information Technology.

Noerjannah I. (2016). Concentration Contribution to Service Accuracy Skills for Volleyball for Female Players in SMK Negeri 1 Kemlagi Mojokerto, *Journal of Sports Health*, vol. 4 no. 2.

Özdal, M., Akcan, F., Abakay, U., & Dağlıoğlu, Ö. (2013). Video destekli zihinsel antrenman programinin futbolda şut becerisi üzerine etkisi. *Spor ve Performans Araştırmaları Dergisi*, 4(2), 40-46.

Piepiora, P., Witkowski, K., & Migasiewicz, J. (2017). Evaluation of the effects of mental visualisation training in sport with regard to karate shotokan fighters specialising in kata. *Journal of Combat Sports & Martial Arts,* 8(1).

Proske U.,& Gandevia S. C. (2012). The Proprioceptive Senses: Their Roles in Signaling Body Shape, Body Position and Movement, and Muscle Force. *Physiological Reviews* 92, 4 (oct 2012), 1651–1697. **doi:http://dx.doi.org/10.1152/physrev.00048.2011**

Raberts Glin S., Sping K., & Pemberton S. (2003). Teaching sport psychology. First print. Roshd publication, Tehran, Iran.

Rosenbaum L. (2020). How to Boost Sports Performance With Your Eyes Closed. Erişim tarihi: 23 Mart 2021, https://www.teamsnap.com/blog/general-sports/how-to-boost-sports-performance-with-your-eyes-closed.

Rusin J. (2017). Close Your Eyes During Some Exercises. Erişim tarihi: 03 Nisan 2021, https://www.t-nation.com/training/tip-close-your-eyes-during-some-exercises

Seedman J. (2021). Eyes closed training for strength, performance, & function Erişim tarihi: 05 Nisan 2021, https://www.advancedhumanperformance.com/blog/eyes-closed-training-for-strength-performance-function

Seedman J. (2020). Movement Redefined. Advanced Human Performans

Shackell E.M., & Standing L.G. (2007). Mind Over Matter: Mental Training Increases

Physical Strength. North American Journal of Psychology, 9 (1), 189-200.

Shiffman HR. Sensation and Perception: An Integrated Approach (5th ed). New York: John Wiley and Sons, 2001.

Silva M., Lacerda D., João P.V.(2014). Game-Related Volleyball Skills that Influence Victory. *Journal of Human Kinetics*. 41,173-179. **doi: 10.2478/hukin-2014-0045**

Sklare, G. B. (1997). Brief counseling that works: A solution-focused approach for school counselors. Sage Publications Co.

Smirnov A. S., Alikovskaia T.A., Ermakov P.N., Khoroshikh P.P., Fadeev K. A., Sergievich A.A., Tumialis A.V., Golokhvast K.S. (2019). Dart Throwing with the Open and Closed Eyes: Kinematic Analysis. Computational and Mathematical Methods in Medicine, 1-10. **https://doi.org/10.1155/2019/4217491**

Wulf G., Shea C.H., & Park J.H., (2001). Attention in motor learning: Preferences for and advantages of an external focus. Research Quarterly for Exercise and Sport. 72: 335-344.

Wong, J. D. (2012). On Sensorimotor Function and The Relationship Between Proprioception and Motor Learning. Electronic Thesis and Dissertation Repository.