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The Effect of Eye-Hand Coordination Training on Improving The Service Skills of Tennis Athletes

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Abstract

Service in tennis is a very important thing to determine the course of a game, players who often make mistakes in this process tend to experience a lack of self-confidence. Then it results in loss of concentration and unbalanced coordination. Players with fast hand reaction and hand-eye coordination who have high performance in every game. This study aims to determine the effect of hand-eye coordination training on improving the service skills of tennis athletes. The method used in this study is the Experimental method with a Pre-test Post-test Control group design design. The population used was 15 Indonesia University of Education Tennis Student Activity Unit athletes. Sampling was carried out by Purposive Sampling, and the sample numbered 8 people, then divided into 2 groups, namely the experimental group with Hand-Eye Coordination Training and Service Drills and the control group with Service Drill Training. In measuring the skills or accuracy of athletes using instrumentsHewitt tennis achievement test.Service Drill Training with Eye Hand Coordination and Service Drill Training have a significant influence on improving service skills. However, Service Drill Training with Eye Hand Coordination shows better results in improving the service skills of athletes in the sport of Tennis.

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INTRODUCTION

Sports activities have various models that can be done either individually or in groups teams, which makes sports one of the needs and means that can connect Indonesian society with other countries throughout the world (Malo & Nurhidayat, 2021). Achievement sports have high competitive competition so that athletes are encouraged to improve their abilities and continue to practice. The competitions held range from regional, provincial, national and even international (Mawarda & Nurhidayat, 2021). One of the sports that can encourage achievement in sports is tennis, the goal of playing tennis is to play the ball in a certain way so that the opposing player cannot return the ball (Rahmawati, 2017). This tennis game consists of two types of matches, namely singles and doubles, where the doubles match consists of men's doubles and women's doubles and mixed doubles (Irfan Arifianto & Raibowo, 2020). TechniqueThe basics of tennis consist of groundstrokes, smashes, serves, volleys, and lobs. Based on these basic techniques, each has different basic movements (Mawarda & Nurhidayat, 2021). And one of the techniques that must be mastered is service,Service technique is basically the first stroke performed on a tennis court game. From the various basic stroke techniques in a tennis court game, they must be mastered because they affect the athlete's skills. Mastery of basic tennis court techniques is highly prioritized in order to achieve optimal performance (Agus & Wibowo, 2017).

In tennis, the serve is the most important single stroke to be able to win points in a match. In later developments, the serve is no longer considered the start of the game, but is the first form of attack (Malo & Nurhidayat, 2021). Also in a recent press release, it shows the average advantage for teams or players when playing in Olympic net sports. The serve has the biggest advantage for the server in tennis (over 60%)(Safari & Saptani, 2019). Thus, the service must be done as well as possible so that it is difficult for the opponent to return it, thus generating points for the player who serves. Based on the observation results during training, players can serve well. However, during the match, their service performance is different and they still make many mistakes. Factors that influence this include physiological, psychological, and technical aspects. Insufficient mastery of service techniques is the main cause of mistakes during the match.A study can be real evidence to change this perception. Reaction speed and eye-hand coordination are biomotor components needed in tennis. While the accuracy of the shot is a skill that must be mastered in tennis. (Kurdish & Qomarrullah, 2020).

Ability is closely related to the techniques and tactics that must be mastered, supported by related physical components, namely biomotor conditions. The biomotor components that are considered important are hand reaction speed and hand-eye coordination. There are two terms, namely reaction speed and movement speed (Kurdi & Qomarrullah, 2020). Reaction speed is the effort related to stimuli in a relatively fast time. Movement speed is the ability of an athlete's organs to move as quickly as possible in one uninterrupted movement. Coordination is a supporting component of tennis court technique skills (Nugroho, 2015). Then, the accuracy of hitting and placing the ball is very important in tennis court games. The accuracy of placing the ball is also an indicator of the success of the technique performed. Players with hand reaction speed and hand-eye coordination have high performance in every game.Eye-hand coordination is the harmonious relationship of the eyes and hands that occurs in one (Sakti, 2017).

So the researcher wants to discuss whether there is a difference in the influence between service drill training and hand-eye coordination training with service drill training without hand-eye coordination training on improving the service skills of tennis athletes. And the purpose of this study is to examine the problem in more depth, which will later be the results of this study can be used as a scientific contribution, especially regarding the service skill aspect in the sport of tennis, especially regarding the influence of eye coordination training on improving tennis service skills and can be used as a reference for information for tennis coaches and athletes to improve the accuracy of tennis athletes' services by using eye coordination training.

The serve in tennis is a crucial element that determines the course of a match, where execution errors can lead to decreased confidence, loss of concentration, and impaired coordination. Observations during training show that players can perform serves well, but in competitive situations, the error rate increases significantly. This phenomenon is influenced by various factors, including physiological, psychological, and technical aspects, with insufficient mastery of technique being a primary factor. However, existing research remains limited in exploring specific approaches to enhance serve performance stability from training to competition, particularly in the context of integrated psychological and technical

interventions. Therefore, this study offers novelty by developing a training method that combines technical, mental, and physiological approaches to improve serve consistency in competitive settings. Thus, this research not only identifies the primary causes of serve performance inconsistency but also designs a scientifically based solution that can be effectively implemented in tennis training.

METHODS

In this writing, the researcher used the experimental method (Mustafa et al., 2020) stated that the experimental method is a way of conducting research whose purpose is to find the cause and effect between two factors that are deliberately manipulated or reduce disturbing factors. In the process of experimentation with athletes of the Indonesian Education University sports club who are members of the tennis field sport. This study was divided into 2 groups, namely one experimental group and one control group. The research design used was the pretest-posttest control group design in this design there were two groups selected randomly with both groups being measured, the first measurement functioned as a pretest and the second posttest, then given a pretest to determine the initial condition and the second posttest to determine the initial condition whether there was a difference between the experimental group and the control group (Fraenkel, JR, Wallen, NE, & Hyun, 2012).

The population in this study were 15 tennis athletes at the Student Activity Unit of the Indonesian Education University, male and female. Sampling in this study used purposive sampling, where the researcher determined the sampling by determining special characteristics that were in accordance with the objectives of the study so that it was expected to answer the researcher's problems. The author took samples of tennis athletes at the Indonesian Education University. Of the 15 people who met the criteria, only 8 athletes were selected, then the sample was divided into two groups through purposive sampling (Handayani, 2020), so that two groups were obtained, namely a control group of 4 people and one control group with 4 subjects.

The service performed must be able to direct the ball to certain places in the service space or box and provide spin on the ball, so that the opportunity for the ball to enter the service box is greater and the ball falls exactly on target. Aspects measured in tennis serve accuracy using the Hewitt tennis achievement test (Febrian & Wulandari, 2023). With a validity coefficient of 0.772 and a reliability coefficient of 0.94 (Yusri, 2020). This research lasted for 6 weeks according to(A. Bompa T, O & Buzzichieli, 2019), which states that effective training is at least 4-6 weeks. The study was conducted in 16 meetings, with a frequency of three times a week. The study was conducted at Indonesia University Of Education Setiabudi, Bandung City, on Tuesday, Wednesday and Friday at 16.00-17.00 WIB.

Data were obtained at the beginning of the experiment as initial data and at the end of the experiment as final data. The data that had been collected from the pre-test and post-test participants then carried out a normality test to determine the normality of the data that had been obtained. Therefore, the researcher used a statistical test approach (Shapiro-Wilk), because the sample used is less than 30 people, the data analysis technique that will be used in this study with statistical data and in this study using the t-test. This technique is used to compare the average between two groups, the treatment and control groups. To facilitate data analysis, researchers will use the help of the SPSS 25 (Statistical Package for the Social Science) and Microsoft Excel programs (Fadluloh et al., 2024).

RESULTS AND DISCUSSION

The pretest experiment obtained an average value of 16.25 while the posttest experiment obtained a value of 23.25, then the standard deviation of the pretest experiment was 2,630 while the standard deviation of the posttest experiment was 2,630, the lowest value of the pretest experiment was 14 while the lowest value of the posttest experiment was 21, the highest value of the pretest experiment was 20 while the highest value of the posttest experiment was 27, then the N value of the pretest experiment was 4 and the N value of the posttest experiment was 4. Furthermore, the pretest control obtained an average value of 15.25 while the posttest control obtained a value of 17.00, then the standard deviation of the pretest control was 1,258 while the standard deviation of the posttest control was 1,826, the lowest value of the pretest control was 14 while the lowest value of the posttest control was 15, the highest value of the pretest control was 17 while the highest value of the posttest control was 19, then the N value of the pretest control was 4 and the N value of the posttest control was 4.

The decision taken by the researcher from these criteria is that there is an influence of hand-eye coordination training on the service skills of

tennis athletes.. The pretest of the Hand-Eye Coordination and Service Drill groups was 0.887, df 4, and sig. was 0.369 while the posttest was 0.927, df 4, and sig. was 0.577, then the pretest value of the Service Drill group was 0.895, df 4, and .sig was 0.406 while the posttest was 0.950, df 4, and .sig was 0.714. Based on the test results, both data obtained a Sig. value >0.05, then the data is declared normal.

Based on the calculation results, the sig value is >0.05, so it can be stated that the data is distributed homogeneity.

Two data can be said to have an influence or have a significant difference if the probability (p-value) has a value smaller than 0.,05. The data reasearch shows the number 0.000 because the value of 0.000 is smaller than 0.05, so the Hand Eye Coordination and Service Drill training has a significant influence on improving service skills in the sport of Tennis because the posttest value obtained has an average greater than the pretest value.

The data reasearch shows the number 0.035, so because 0.035 is smaller than 0,05 then the Service Drill Training has a significant influence on improving service skills in the sport of Tennis because the posttest value obtained has an average greater than the pretest value.

In the column obtained sig value 0.008 <0.05 then Ho is rejected, so it can be concluded that there is a significant difference between hand-eye coordination training and service drill with service drill training on improving athlete service skills in field tennis. Judging from the mean above, the hand-eye coordination and service drill group has a mean of 23.25 higher than the mean of the service drill group 17.00 so that hand-eye coordination and service drill training has a higher influence on improving the service skills of field tennis athletes.

In tennis, the serve is the most important single stroke to be able to win points in a match. In later developments, the serve is no longer considered the start of the game, but is the first form of attack (Malo & Nurhidayat, 2021). Serve in tennis is very important in determining the course of the game, players who often make mistakes in this serve generally tend to experience a lack of self-confidence. Then it results in unbalanced concentration and coordination (Kurdish & Qomarrullah, 2020).

In accordance with the results of the processing above, it shows that there is an effect of hand-eye coordination training on increasing the accuracy of tennis athletes' services. The method of hand-eye coordination training and service drills affects the performance of athletes as evidenced by the results of the pre-test and post-test that have been carried out, the results of the post-test after being given treatment increased.

Based on the results of research on hand-eye coordination training, researchers revealed that there was a significant influence on the service skills of tennis athletes. The hand-eye coordination training method and service drills provided affected the performance of athletes as evidenced by the results of the pretest and post-test. According to previous studies, athletes who have high hand-eye coordination have the ability to perform movements more easily and precisely compared to athletes who have low hand-eye coordination.(Asri, 2017). By having good hand eye coordination and regular practice, an athlete will have good throwing accuracy (Widodo & Hafidz, 2018). For athletes who have high eye-hand coordination, this will actually be able to develop their skills towards achieving increased skills, because they are more interested in doing further (Anugrarista & Arisman, 2019).

This study also proved that in addition to hand-eye coordination training and service drills, there is an influence on service skills, service drill training can also improve the service skills of tennis athletes. This increase is seen from data processing that the athlete's service skills increased after being given service drill training. According to the literature study, Based on the opinion above, using a training approach through the Drill method can provide a significant influence or training effect on the tennis athlete's service skills. Because the training approach with the Drill method is the most appropriate choice in learning to realize movement, in order to improve the basic skills of athletes (Naldi, 2017).

There is a difference between hand-eye coordination training and service drills with service drills on improving service skills, indicating that hand-eye coordination training and service drills are more significant than service drills alone in improving service skills in the sport of Tennis. It can be seen from the results of the data above that hand-eye coordination training and service drills have a higher influence than service drills alone without using hand-eye coordination training because athletes who have high hand-eye coordination will actually be able to develop their skills towards achieving increased skills. According to previous studies, athletes who have high hand-eye coordination have the ability to perform movements more easily and precisely compared to athletes who have low hand-eye coordination

(Asri, 2017). Mastery of coordination skills in the field of sports is one of the main tasks to be able to achieve expertise or in terms of mastery of skills. As said (Anugrarista & Arisman, 2019), the effectiveness of the drill training method with eye-hand coordination is significantly better compared to the tactical training method. Coordination in tennis court based on its classification, namely agility, balance, coordination (eyes, hands, feet) differentiation, orientation, rhythm and reaction according to Yonda in (Irfan Arifianto & Raibowo, 2020).

Based on the results of the research that has been done, it was found that hand-eye coordination training has a significant effect on the service skills of tennis athletes. With these results, of course, it has positive implications and can be used as a reference for further researchers. Thus, the results of this study can be used as a reference for information for coaches to design hand-eye coordination training programs for tennis service skills. Then the results of this study can be used as a reference for information for tennis athletes to improve their service skills by using hand-eye coordination training and service drills. Based on the results of the research that has been done, the author would like to provide some input and suggestions after conducting the research. For further researchers, it is expected to involve more samples and it is hoped that the next sample will be for junior/beginner athletes, and use a variety of training models.

CONCLUSION

Based on the results of the study, calculations and also data analysis that has been done. The author can conclude about hand-eye coordination training on the service skills of tennis athletes represented by tennis Student Activity Unit athletes, There is a difference in the influence between hand-eye coordination and service drills with service drill training on improving the service skills of tennis athletes. This can be seen from the results of the hypothesis test which shows that the hand-eye coordination training method has a significant effect on the service skills of tennis athletes. Hand-eye coordination training and service drills have a greater influence on improving skills in tennis service compared to service drill training alone, and can improve accuracy.

REFERENCES

A. Bompa T, O & Buzzichieli, C. (2019). Periodeization:Theory and Methodology of training(sixth Edit)Human Kinetics.

Agus, R., & Wibowo, T. (2017). Perbedaan Pengaruh Model Pembelajaran Berganti Dan Backhand Tenis Lapangan Ditinjau Dari Koordinasi Mata-Tangan. Jurnal Ilmiah PENJAS, ISSN : 2442-3874 Vol 3. No.2 Oktober 2017, 3(2), 11–26.

Anugrarista, E., & Arisman, A. (2019). Pengaruh Metode Latihan dan Koordinasi Mata-tangan Terhadap Keterampilan Smash Bulutangkis. Jurnal MensSana, 4(1), 1. https://doi.org/10.24036/jm.v4i1.28

Asri, N. (2017). Pengaruh Metode Latihan Multiball dan Koordinasi Mata Tangan terhadap Peningkatan Keterampilan Forehand Drive Tenis Meja. Journal of Physical Education and Sport Universitas Negeri Semarang, 6(2), 179–185.

Fadluloh, F. M., Sartono, H., & Kusumah, W. (2024). Athletes ' Perception of Parental Support and Achievement Motivation : A Correlational Study with Early Age Individual Sport Athletes in Swimming. 412–421.

Febrian, M., & Wulandari, I. (2023). Hubungan Kekuatan Genggaman Terhadap Ketepatan Servis. Wahana Didaktika : Jurnal Ilmu Kependidikan, 21(3), 534–544. https://doi.org/10.31851/wahanadidaktika.v21i3.11745

Fraenkel, J. R., Wallen, N. E., & Hyun, H. H. (2012). Jack Fraenkel How To Design and Evaluate Research in Education, 8 th Edition.

Handayani, R. (2020). Metode Penelitian Sosial. In Bandung (Issue September).

Irfan Arifianto, & Raibowo, S. (2020). Model Latihan Koordinasi Dalam Bentuk Video Menggunakan Variasi Tekanan Bola Untuk Atlet Tenis Lapangan Tingkat Yunior. STAND : Journal Sports Teaching and Development, 1(2), 78–88. https://doi.org/10.36456/j-stand.v1i2.2671

Kurdi, K., & Qomarrullah, R. (2020). Hubungan Kecepatan Reaksi Tangan dan Koordinasi Mata Tangan Pada Servis Tenis Lapangan Mahasiswa Universitas Cenderawasih. Jurnal Terapan Ilmu Keolahragaan, 5(1), 22–27. https://doi.org/10.17509/jtikor.v5i1.25060

Malo, F. A. P., & Nurhidayat. (2021). Survei Kemampuan Pukulan Servis Pada Mahasiswa Student Activity Unit Tenis Lapangan Universitas Muhammadiyah Surakarta. Journal of Innovation Research and Knowledge, 1(5), 845–854.

Mawarda, H. D., & Nurhidayat. (2021). Keterampilan Servis Flat Tenis Lapangan. Pendidikan Jasmani Kesehatan & Rekreasi, 4(2), 110–117.

Mustafa, P. S., Gusdiyanto, H., Victoria, A., Masgumelar, N. K., Lestariningsih, N. D., Maslacha,

H., Ardiyanto, D., Hutama, H. A., Boru, M. J., Fachrozi, I., Isaci, E., Rodriquez, S., Prasetyo, T. B., & Romadhana, S. (2020). No Title.

Naldi, J. (2017). Pengaruh Metode Latihan Drill dan Latihan Bermain terhadap Keterampilan Dasar Tenis Lapangan Atlet Tenis PTL GOR Agus Salim Kota Padang. 4, 11149–11161.

Nugroho, U. (2015). Analisis Biomekanika Tenis Lapangan Menggunakan Software Dartfish Prosuite.

Rahmawati, I. D. (2017). Manajemen sumber daya olahraga tenis lapangan. Jurnal PINUS, 3(1), 25–31.

Safari, I., & Saptani, E. (2019). Metode latihan dan koordinasi mata tangan meningkatkan akurasi forehand sidespin service tenis meja. Jurnal Keolahragaan, 7(2), 174–181. https://doi.org/10.21831/jk.v7i2.26788

Sakti, B. P. I. (2017). Hubungan koordinasi mata-kaki dan kelincahan dengan keterampilan menggiring bola dalam permainan sepakbola pada siswa ekstrakurikuler SMA Negeri 2 Lubuklinggau. Biormatika : Jurnal Ilmiah Fakultas Keguruan Dan Ilmu Pendidikan, 3(2), 1–7.

Widodo, W., & Hafidz, A. (2018). Kontribusi Panjang Lengan, Koordinasi Mata Tangan, dan Konsentrasi Terhadap Ketepatan Shooting Pada Olahraga Petanque. Prestasi Olahraga, 3(1), 1–6.

Yusri, A. Z. dan D. (2020). Dampak Kecemasan Bersaing Dan Pengaruh Orang Tua Terhadap Kinerja Perenang Muda. Jurnal Ilmu Pendidikan, 7(2), 809–820.