

The Effect of Fixed and Changing Directional Throw Drill Exercises on the Results of Sepak Takraw's First Ball Reception with Sepak Sila

Wisnu Mahardika^{1,*}, Rivan Saghita Pratama², Sri Haryono², Tri Aji², Viki Ardi Rosyanto², Teguh Santosa¹, Iwan Arya Kusuma¹, Ali MD Nadzalan³, Slamet Sudarsono¹, Agus Supriyoko¹, Pipit Fitria Yulianto¹

¹Faculty of Teacher and Education, Universitas Tunas Pembangunan, Surakarta, Indonesia

²Faculty of Sports Science, Universitas Negeri Semarang, Semarang, Indonesia

³Faculty of Sports Science and Coaching, Universiti Pendidikan Sultan Idris, Malaysia

Received January 9, 2023; Revised February 13, 2023; Accepted March 19, 2023

Cite This Paper in the Following Citation Styles

(a): [1] Wisnu Mahardika, Rivan Saghita Pratama, Sri Haryono, Tri Aji, Viki Ardi Rosyanto, Teguh Santosa, Iwan Arya Kusuma, Ali MD Nadzalan, Slamet Sudarsono, Agus Supriyoko, Pipit Fitria Yulianto, "The Effect of Fixed and Changing Directional Throw Drill Exercises on the Results of Sepak Takraw's First Ball Reception with Sepak Sila," *International Journal of Human Movement and Sports Sciences*, Vol. 11, No. 2, pp. 424 - 431, 2023. DOI: 10.13189/saj.2023.110220.

(b): Wisnu Mahardika, Rivan Saghita Pratama, Sri Haryono, Tri Aji, Viki Ardi Rosyanto, Teguh Santosa, Iwan Arya Kusuma, Ali MD Nadzalan, Slamet Sudarsono, Agus Supriyoko, Pipit Fitria Yulianto (2023). *The Effect of Fixed and Changing Directional Throw Drill Exercises on the Results of Sepak Takraw's First Ball Reception with Sepak Sila. International Journal of Human Movement and Sports Sciences*, 11(2), 424 - 431. DOI: 10.13189/saj.2023.110220.

Copyright©2023 by authors, all rights reserved. Authors agree that this article remains permanently open access under the terms of the Creative Commons Attribution License 4.0 International License

Abstract The purpose of the study was to test the influence and differences in fixed and changing directional throw drill exercises on the results of receiving the first ball. The research method uses the M-S (Matched Subject Design) pattern experiment. The total population was 24 people and a sample of 12 people with the Purposive Sampling technique. Research instrument with the first ball test that has been retested with validity 0.79 and reliability 0.96. The free variables of drill exercises fixed and changing directions and the bound variables of the first ball's receiving ability. Data analysis used t-test statistics at a significance level of 5% with d.b n-1. The results of the study were obtained: 1) The experimental group of 1 t-count is greater than the t-table (5,869 >2,571) meaning that there is an influence of the training drill of fixed directional throwing. 2) the experimental group of 2 t-counts is greater than the t-table (6,932 >2,571) meaning that there is an influence from the drill exercise that the direction changes. 3) the test results of the difference in the effect of the fixed and changing direction throw drill exercises T-count are smaller than the T-Table (0.209 < 2.571) meaning that there is no difference in the influence

of the two exercise methods.

Keywords First Ball Reception, Fixed Direction, Direction Changed, Sepak Takraw

1. Introduction

Sepak Takraw is a traditional sport that was born in Indonesia and has been developing in Indonesia for a long time [1]. Sepak takraw is one of the sports that is quite difficult because it requires very high levels of perseverance and creativity [2]. The game of sepak takraw is played using rattan balls and is played on a field that is 13.40 m long and 6.10 m wide. The game of sepak takraw consists of two teams facing each other, and each team is followed by three people [3]. Sepak takraw prioritizes the legs, head, chest, and thighs in addition to the hands [4]. The goal of the game is to return the ball until it falls on the opponent's court or make the opponent make a mistake [5].

To display a good sepak takraw game, one is expected to

have an advantage in his skills [6]. Basic skills are indispensable in the face of matches, so that players can master and win them [7]. The basic skills of sepak takraw in the game of sepak takraw are inseparable whole [8]. Any sporting achievement requires the use of basic principles to obtain effective, efficient and safe performance techniques [9]. These basic techniques include: sepak kura, sepak sila, scoring, scooping, tread kicking, and heading are some of them [5].

Among the basic techniques above, there are several techniques that must be mastered, namely defensive techniques and attacking techniques. Defensive techniques include sepak sila and blocks and attacking techniques include smashes and starts. Sepak Sila is an important basic technique for receiving the first ball because it can be used to receive, master and build attacks from opponents. Sepak sila is very dominant and is used to: 1) receive the opponent's service attack, 2) give the smash pass, 3) receive the opponent's smash [10]. Sepak takraw is an effective and efficient way of playing ball to achieve the best results [11]. Sepak sila is an important basic technique in the game of Sepaktakraw, because a good mastery of sepak sila will make it easier for a person to control, feed the ball, receive the ball and resist the opponent's attacks and serves [12]. Silly sepak sila looks like cross-legged when flapping the ball and is used to receive the ball, feed, control the ball, and save from the opponent's attack [5].

There are several ways to perform the technique of receiving the first ball, including: sepak sila, sepak kura, thighs, and heading [5]. Every sepak takraw player must accept the challenge of doing sepak mula because failing to do so will result in the opposing team's score (points) [13]. Getting the first ball, also known as a serve ball for an opponent, is an important exercise for all players because it is one of the most vital and challenging skills to master [14]. The player's success in receiving the first ball (serve) well from the opponent is influenced by internal (from within the player) and external (from outside the player) factors [15]. Depending on the performance on the field, the level of anxiety and effort during the game will change [16]. The success rate of the first ball is influenced by the opponent's service ability. Capable opponent skills will be very troublesome for players who receive your serve because the service team can vary greatly, sometimes difficult [5].

Exercise is a systematic process that is carried out repeatedly by increasing the load of each exercise [17]. Exercise is closely related to the physical component or biomotor component of an athlete [18]. The preparation of a training plan must be done by a trainer so that the training process runs smoothly and in accordance with the goals to be achieved [19]. The purpose of training is to assist athletes in strengthening their abilities and performance. Athletes must carefully analyze and practice the following four components of training to achieve this (1) physical training, (2) engineering training, (3) tactical training, and (4) mental training [20]–[22].

The Achievement Sports Training Center (PPOP) was inaugurated in 2010 under the direction of Ir.Sujarot. led by Mustakhim, Panji Kerso, and Nur Cholis, three coaches. Gedangan Village, Welahan District, Jepara Regency is where PPOP is located. From the results of observations, researchers found that PPOP athletes still have many weaknesses, especially when receiving the first ball. Defensive skills from serve are a key and fairly important defensive technique [23]. PPOP sepak takraw Jepara athletes still lack a variety of exercises at the time of ball reception training. Variation is very important to perform in practice [24]. The drill training method is a learning method that emphasizes mastery of techniques in a sport that is carried out repeatedly. The drill training method has the advantage of improving skills by forming a subconscious habit of repetitive movements over several sessions [25]. A fixed directional throw is a method or way to practice the accuracy of receiving the first ball by using the same goal i.e. sepak sila continuously and not changing the goal before a set can be completed [26]. In this study, what is meant by fixed direction throw drill training is an exercise to obtain good first ball acceptance ability with the coach's throws that are done repeatedly quickly towards the athlete. A change direction throw is a method or way to practice the accuracy of receiving the first ball by using a capricious throw in a set [26]. In this study, what is meant by drill training is an exercise to obtain the ability to receive the first ball with the coach's throws that are carried out repeatedly in changing directions and are carried out quickly.

2. Materials and Methods

The approach used in this study is a quantitative approach. As the name implies, this research requires the use of numbers, starting from data collection, interpretation of data, and display of results. Experimentation is a way to find a causal relationship between two factors consciously caused by researchers by reducing other factors [27]. This research method uses a Matched Subject Design pattern, in this design an experiment that uses two groups of slings that have been equated subject by subject before the treatment is carried out. What is equated is one or more known variables affecting the experimental results, namely outside variables or factors that are experimented with [28]. There are two free variables or X in this study, namely Variable 1 (X1): Fixed direction throw drill exercise Variable 2 (X2): Direction throw drill drill training. Variables are the object of study. Variable is a term that never lags behind in any study [27]. The population in this study was PPOP sepak takraw athletes in Jepara district in 2020 with 24 athletes. The population does not always have to be the number of individuals. It can also refer to the overall number of things or situations that the study focuses on [29]. The sampling technique in this study used

purposive sampling technique. In order to select participants based on specific goals rather than on a strata, randomly, or regionally basis, purposive sampling techniques were used [27]. This study used 12 samples from 24 Jepara sepak takraw PPOP athletes who had good first ball removal skills according to the coach. This study used standard procedures to conduct the test. The first ball acceptance test on sepak takraw has been developed by researchers with validity values = 0.547 and reliability = 0.690. However, after retesting the instrument with different samples, different validity and reliability values were obtained, namely validity = 0.79 and reliability = 0.97 [26]. The next phase is to offer treatment or physical activity three times per week for a total of 16 meetings. It is stated that the frequency of exercise should be performed at least three times per week, that is, several times the frequency of exercise [30]. The final phase is to collect post-test data to ensure the final ability of the sample to follow the training. The method for data analysis involves first conducting a normality test, then a t-test of a paired sample.

3. Result

The results of the first sepak sila reception training study of 12 PPOP sepak takraw Jepara players were divided into 2 groups with 6 players each given below. The experimental group I was given a fixed direction throw drill exercise method and the second experimental group was given a change direction throw drill exercise method. Both of these training methods are given to improve the first ball acceptance skills. The following are the results of each player before and after being given the practice of the fixed directional throw exercise method, illustrated in Figure 1.

Based on the number 1 data of the passing score of the experimental group I showed that the lowest and highest score before being given a fixed directional throw drill exercise was 15, all players experienced an increase in the results of receiving the first ball.

Then, as experimental group II, 6 more PPOP sepak takraw players were trained with the practice method of changing drill throwing directions. The results of the scores before and after being given graduation practice with diamond graduation in experimental group II are depicted in Figure 2.

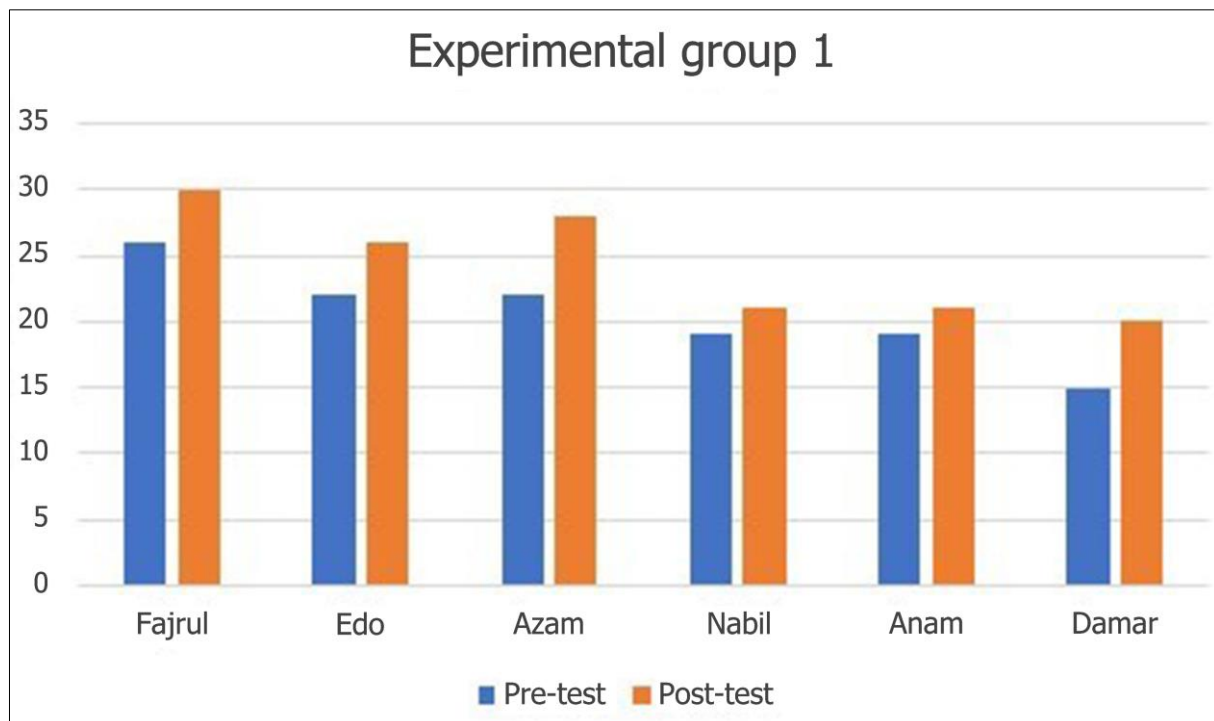


Figure 1. Diagram of Experimental Group I Graduation Results

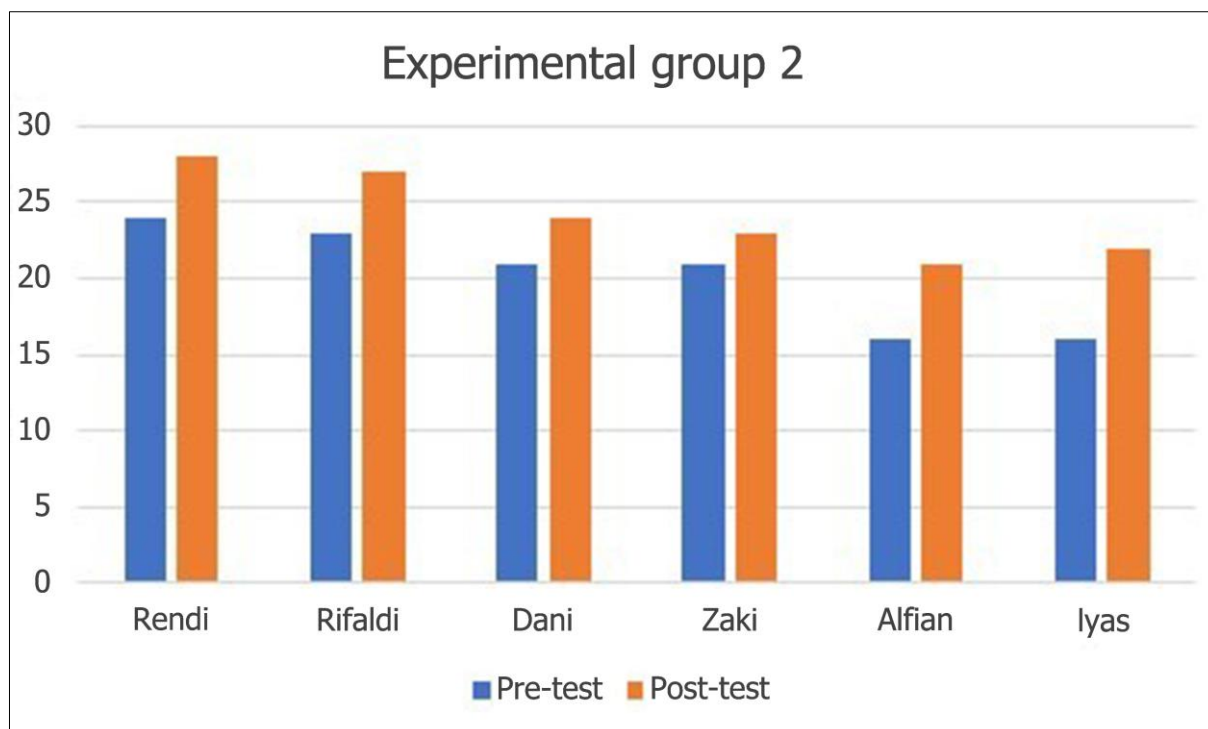


Figure 2. Diagram of Graduation Results of Experimental Group II

Table 1. Normality Test

One-Sample Kolmogorov-Smirnov Test					
		PreTest	PostTest	PreTest	PostTest
		Group I		Group II	
N		6	6	6	6
Normal Parameters ^{a,b}	Mean	20.50	24.33	20.17	24.17
	Std. Deviation	3.728	4.227	3.430	2.787
	Absolute	.177	.285	.263	.191
Most Extreme Differences	Positive	.177	.285	.221	.191
	Negative	-.177	-.153	-.263	-.179
Kolmogorov-Smirnov Z		.177	.285	.263	.191
Asymp. Sig. (2-tailed)		.200c,d	.140c	.200c,d	.200c,d

Based on the number 2 data, the results of the first ball reception of the experimental group II showed that none of the players experienced a decrease in results, all players experienced an increase in the results of receiving the first ball. This shows that the players who were given the change direction throw drill training experienced a significant improvement.

Normality Test

Normality test values are used to determine normally distributed data. In the data of short passing test scores on all samples performed for initial and final testing, they are presented in Table 1.

Based on data table number 1, the pre-test and post-test

scores of experimental group I were 0.177 and 0.285, respectively, while the test scores of experimental group II for pre-test and post-test were 0.263 and 0.191, respectively. Drawing conclusions with a critical level of 0.05, it is known that the significance value of the results of pre-test and post-test experiments of group I and experiment II is more than 0.05 ($p > 0.05$) so that it can be concluded that the data comes from a normally distributed population. So that it can be continued with a paired sample test (paired sample T-test).

Paired Sample T-Test

After testing the hypothesis of the influence of the fixed direction throw drill exercise method on the reception of

the first ball, the following results were obtained.

Table 2. Pre-test and Post-test Test Results of Experimental Group I

Exercise Methods	T-count	T-table	Information
Fixed Directional Throw	5,869	2,571	5,869 > 2,571 Significant

Table 3. Pre-test and Post-test Test Results of Experimental Group II

Exercise Methods	T-count	T-table	Information
Throwing Direction Changed	6,932	2,571	6,932 > 2,571 Significant

Based on table 2 above, it can be concluded that the t-count result is greater than the t-table, which is $5,869 > 2,571$, which means that there is an influence of fixed directional throw drill training based on the results of the first ball reception of PPOP Jepara sepak takraw athletes.

Based on table 3 above, it can be concluded that the t-count result is greater than the t-table, which is $6,932 > 2,571$, which means that there is an influence of directional throw drill training based on the results of receiving the first ball of PPOP Jepara sepak takraw athletes.

4. Discussion

Effect of Fixed Directional Throw Drill Training on First Ball Acceptance Results

There are many forms of practice that can make the ability to receive the first ball increase, one of which is by training the target game [27]. Mastery of motion skills is very important if the mastery of good and correct movements in accordance with basic techniques will get the desired results [31]. To improve skills, it is necessary to have training structured and implemented with the right training program [32]. The purpose of the first ball reception exercise is to improve the ability and skill of receiving the first ball [31]. The fixed directional throw drill training method is very effective for athletes. In this exercise, the coach conveys to the athlete in a language that is easily understood by the athlete so that the athlete can receive the exercise well. Ease of material delivery and understanding of the material is always prioritized so that the training process runs smoothly [33]. Creating a pleasant atmosphere to motivate athletes in participating in the training process makes it easier for athletes to understand the material taught [34]. This exercise can improve the skills of receiving the first ball, simple and easy-to-understand exercises make athletes more prepared in training and give good results. Directional throw drill training is still good for training the first ball receiving skills because it can train the accuracy of recognition on the feet when getting the first ball, in this way athletes can

receive hard and slow attacks, so as to train the accuracy of the ball recognition when receiving the first ball. The effectiveness and ability to anticipate motion can be increased by conducting drill training continuously [35], [36]. Repetitive training with increasing training loads/weights can help athletes to improve skills [37].

Effect of Directional Throw Drill Training Changes on First Ball Receiving Results

The practice method of directional throw drills changes very effectively for athletes. This practice can improve the first ball reception skills. Exercising with a ball at roughly the same speed and direction as different variations of serve or starting sepak sila can help improve reaction time and accuracy when receiving the first ball [38][37]. Reaction speed is very important and can change the way a person performs whether attacking or defending [39]. Repetition and drilling exercises increase the speed and coordination of movements [40]. Directional throw drill training changes well to train the first ball receiving skills because it can train the reaction speed and flexibility of the foot when chasing the ball to the left and right and can also train the accuracy of the foot when getting the first ball. This exercise can also be used to receive a block ball from the opponent because the direction of the ball is erratic. In this method of practice, the basic technique used is sepaksila. The sepak sila technique is used to perform defense which is then to control the ball and feed towards the smasher so that the ball can be turned off in the field of the opposing team [41]. According to PPOP sepak takraw second coach Jepara Panji Kerso in an interview on August 20, 2022 "the method of drill throwing direction changes very well for athletes because it can improve the first ball reception skills. This training can also increase the agility of athletes due to the throwing of the ball to the right and left sides of the body so that athletes have to move right and left. Agility is a very important physical condition in sports [42]. The ability to move changes direction in a fast and precise time but without losing balance can increase the speed at which athletes receive the ball [43]. This exercise can also increase the reaction speed because the ball is thrown randomly. If this exercise is done repeatedly, it will make athletes get used to it when receiving attacks that are not necessarily in direction.

Differences in the Effect of Fixed and Changing Directional Throw Drill Exercises on the Results of First Ball Reception

Based on the results of the hypothesis test calculation, a t-count of 0.209 was obtained with a signification value = 5%. The t-count is smaller than the t-table which is $0.209 < 2.571$ meaning that there is no difference in influence between the two methods. But both methods both have the effect of improving the athlete's first ball acceptance skills. With this, the third hypothesis that states that the drill exercise of the directional throw changes better than the directional throw remains unproven. Both exercises are

performed in 16 meetings with a frequency of 3 times a week. The efficiency of each training technique in achieving targets varies. However, in terms of practice, the changing direction leparan method gives better results because it can increase endurance. Exercises that can be used to increase endurance are that the chosen exercise must be long-lasting [44]. With continuous ball chasing exercises that are carried out with 15 reps and carried out in 8 sets, it can increase endurance. This exercise also improves the athlete's concentration because the direction of the ball is erratic. one's concentration is very influential in carrying out the reception of the first ball [44].

Table 4. Comparison of T-count and T-table Values

Exercise Methods	t-count	t-table	Information
Fixed directional throw	0,209	2,571	0,209 < 2,571 Insignificant
Directional throw changes			

5. Conclusions

Based on the results and discussion in this study, it can be concluded in this study that there is an influence of fixed directional throw drill training on the results of the first sepak sila reception of PPOP sepak takraw athletes in Jepara regency in 2022. There is an influence of the changing direction throw drill training on the results of the first sepak sila reception of PPOP sepak takraw athletes in Jepara district in 2022. There is no difference in the effect between fixed and changing directional throw drill training on the results of the first ball reception of PPOP sepak takraw athletes in Jepara district in 2022.

Based on the results of the study, the advice of the authors is that for athletes, drill exercises of fixed and changing directions can be used to improve the first ball acceptance skills so that the acceptance rate of the first ball can increase and achieve better performance. Coaches and players can apply exercises with a fixed and changing direction throw drill method to add variety to the exercise so that athletes do not feel bored. In the application of training methods, it is necessary to do it regularly with supervision from the trainer to get maximum results

REFERENCES

- [1] Achmad Sofyan Hanif, *Kepelatihan Dasar Sepak Takraw [Sepak Takraw Fundamental Coaching]*. Rajawali Pers, 2015.
- [2] M. Faizin, "Penerapan Model Pembelajaran Kooperatif Tipe Student Teams Achievement Division (Stad) Terhadap Hasil Belajar Sepak Sila Pada Sepak Takraw [Implementation Of Cooperative Learning Model Type Student Teams Achievement Division (Stad) To Learning Results In S,]" *J. Pendidik. Olahraga Dan Kesehatan*, Vol. 2, No. 3, Pp. 715–721, 2014.
- [3] I. Dianawati, H. Pramono, O. Woro, And K. Handayani, "Pengembangan Alat Sensor Gerak Pada Garis Servis Double Event Dalam Permainan Sepaktakraw," *J. Phys. Educ. Sport.*, Vol. 6, No. 3, Pp. 272–278, 2017, Doi: 10.15294/Jpes.V6i3.14629.
- [4] K. Hidayat, "Pengaruh Latihan Variasi Passringball Dan Gameallfive Terhadap Keterampilan Teknik Dasar Sepak Sila Anak Usia Dini Klub Sepak Takraw Citrakartika Tahun 2020 [The Effect Of Passringball And Gameallfive Variation Exercises On The Basic Technical Skills Of E,]" *Semin. Nas. Keindonesiaan*, Pp. 58–69, 2020.
- [5] Sulaiman, *Sepak Takraw Pedoman Bagi Guru Olahraga, Pembina, Pelatih Dan Atlet [Sepak Takraw Guidelines For Sports Teachers, Coaches, Coaches And Athletes]*. Semarang: Universitas Negeri Semarang, 2008.
- [6] F. W. Putra, R. Suwo, And N. Nasarudin, "Hubungan Persepsi Kinestetik Dengan Keterampilan Sepak Sila Pada Permainan Sepak Takraw [The Relationship Between Kinesthetic Perception And Sepak Sila Skills In Sepak Takraw Games,]" *Kinestetik*, Vol. 4, No. 1, Pp. 41–46, 2020, Doi: 10.33369/Jk.V4i1.10398.
- [7] Arief Darmawan, Zihan Novita Sari, Tatok Sugiarto, Sugiyanto, And Surya Adi Saputra, "Pengembangan Model Pembelajaran Tgfu Untuk Meningkatkan Teknik Dasar Sepak Cungkil Dan Sepak Sila Sepak Takraw [Development Of The Tgfu Learning Model To Improve The Basic Techniques Of Sepak Cukil And Takraw Precepts,]" *J. Kejaora (Kesehatan Jasm. Dan Olah Raga)*, Vol. 6, No. 2, Pp. 271–278, Dec. 2021, Doi: 10.36526/Kejaora.V6i2.1523.
- [8] U. Qoryatiningtyas, M. E. W. M. E. Winarno, And M. Surendra, "Pengembangan Variasi Latihan Sepak Sila Untuk Peserta Ekstrakurikuler Sepaktakraw Di Sd Negeri Wonodadi 1 Kecamatan Wonodadi Kabupaten Blitar [Development Of Variations Of Sepak Sila Exercise For Extracurricular Participants Of Sepaktakraw At Wonodadi 1 P,]" *Gelang. Pendidik. Jasm. Indones.*, Vol. 1, No. 1, P. 103, 2017, Doi: 10.17977/Um040v1i1p103-113.
- [9] D. Wicaksono, "Menerima Servis (Receive Serve) Dalam Permainan Bolavoli [Receiving Service (Receive Serve) In Volleyball Games,]" *J. Chem. Inf. Model.*, Vol. 53, No. 9, Pp. 1689–1699, 2013.
- [10] R. Mardela And F. Rahman, "Pengaruh Latihan Sepaksila Individu Dan Berpasangan Terhadap Kemampuan Reservice Atlet Sepaktakraw [The Effect Of Individual Sepak Sila And Pair Sepak Sila Practice On The Reservice Ability Of Sepak Takraw Athletes,]" *J. Performa Olahraga*, Vol. 2, No. 01, Pp. 93–111, 2017, Doi: 10.24036/Jpo69019.
- [11] P. Alfiandi, N. Ali, And H. Wardoyo, "Pengembangan Model Latihan Sepak Sila Pada Permainan Sepak Takraw [Development Of A Sepak Sila Training Model In Sepak Takraw,]" *Journal.Unj.Ac.Id*, Pp. 111–126, 2008.
- [12] Zulman And A. Umar, Ali, "Hubungan Keseimbangan Dan Kelincahan Terhadap Keterampilan Sepak Sila Pemain Sepaktakraw Smp Negeri 2 Batang Anai [The Relationship Between Balance And Agility Towards The Sepak Sila Skills Of Sepaktakraw Players At Smp Negeri 2 Batang

- Anai],” *J. Menssana*, Vol. 3, No. 1, P. 77, Jun. 2018, Doi: 10.24036/Jm.V3i1.68.
- [13] R. D. Dan P. Basa, *Olahraga Pilihan Sepak Takraw [Sepak Takraw Sports Of Choice]*. Depdikbud, 1992.
- [14] M. Hanafi, “Efek Metode Passing Dengan Tembok Terhadap Peningkatan Receive Dalam Permainan Sepak Takraw [The Effects Of The Passing Method With A Wall On Increasing Receive In The Takraw Game],” *J. Pendidik. Kesehat. Rekreasi*, Vol. 6, No. 1, Pp. 44–49, 2020.
- [15] I. Wiyaka, D. E. Daulay, And A. Adikahriani, “Perbedaan Pengaruh Metode Pembelajaran Dan Kecepatan Reaksi Terhadap Kemampuan Menerima Servis Sepaktakraw Pada Mahasiswa Pko Fik Unimed [Differences In The Influence Of Learning Methods And Speed Of Reactions On The Ability To Receive Sepaktakraw Service],” *J. Prestasi*, Vol. 4, No. 2, P. 60, Dec. 2020, Doi: 10.24114/Jp.V4i2.22118.
- [16] G. Miranda, S. Aliberti, And P. L. Invernizzi, “Effects Of An 8-Week Intermittent Aerobic Training Program On Aerobic Power In A Professional Soccer Team,” 2021, Doi: 10.14198/Jhse.2021.16.Proc3.20.
- [17] Rubianto Hadi, *Ilmu Keplatihan Dasar [Basic Training Science]*. Semarang: Cipta Prima Nusantara, 2007.
- [18] Nurkholis, H. Agus, And Lukman, “Latihan Ladder Drill Chimney Jump Meningkatkan Daya Ledak, Kelincahan, Dan Keseimbangan [Ladder Drill Chimney Jump Exercise Increases Explosiveness, Agility, And Balance],” Vol. 19, No. 1, Pp. 48–53, 2020.
- [19] W. P. Kurniawan And M. Firdaus, “Pendekatan Bermain Sebagai Solusi Mengenalkan Teknik Dasar Sepak Takraw [The Approach To Playing As A Solution Introduces The Basic Techniques Of Sepak Takraw],” *J. Sport. J. Penelit. Pembelajaran*, Vol. 6, No. 1, Pp. 226–241, Apr. 2020, Doi: 10.29407/Js_Unpgr.V6i1.13652.
- [20] Harsono, *Kepelatihan Olahraga [Sports Coaching]*. Bandung: Pt Remaja Rosdakarya Offset, 2017.
- [21] R. S. Pratama Et Al., “The Effectiveness Of The Wall Pass And Diamond Pass Practice Method On Short Passing Accuracy,” *Int. J. Hum. Mov. Sport. Sci.*, Vol. 10, No. 5, Pp. 871–877, 2022, Doi: 10.13189/saj.2022.100501.
- [22] A. M. Nadzalan Et Al., “The Effects Of Loadings During Forward Lunge On Force Output In Dominant And Non-Dominant Leg,” *J. Phys. Conf. Ser.*, Vol. 1874, No. 1, 2021, Doi: 10.1088/1742-6596/1874/1/012001.
- [23] Ramlan Sahputera Sagala And Dicky Edwar Daulay, “Pengembangan Media Bantu Latihan Bertahan Pada Bola Voli Tahun 2019 [Development Of Media To Assist Defense Training In Volleyball In 2019],” *J. Coach. Educ. Sport.*, Vol. 1, No. 2, Pp. 115–126, Nov. 2020, Doi: 10.31599/Jces.V1i2.371.
- [24] B. Daulay And S. S. Daulay, “Pengembangan Variasi Latihan Kombinasi Passing Dan Smash Dalam Bola Voli [Development Of Passing And Smash Combination Exercise Variations In Volleyball],” *J. Pendidik. Teknol. Dan Kejur.*, Vol. 20, No. 1, Oct. 2018, Doi: 10.24114/Jptk.V20i1.11040.
- [25] Wahyu Cirana, Arif Rohman Hakim, And Untung Nugroho, “Pengaruh Latihan Drill Smash Dan Umpan Smash Terhadap Keterampilan Smash Bola Voli Pada Atlet Putra Usia 13-15 Tahun Club Bola Voli Vita Solo Tahun 2020 [The Effect Of Drill Smash And Smash Feed Practice On Volleyball Smash Skills In Male Athletes Aged 13],” *J. Ilm. Penjas (Penelitian, Pendidik. Dan Pengajaran)*, Vol. 7, No. 1, Pp. 1–11, Feb. 2021, Doi: 10.36728/Jip.V7i1.1381.
- [26] K. Anam, F. A. Irawan, And L. Nurrachmad, “Pengaruh Metode Latihan Dan Koordinasi Mata-Kaki Terhadap Ketepatan Tendangan Jarak Jauh [Effect Of Training Methods And Eye-Foot Coordination On The Accuracy Of Long Distance Kicks],” *Media Ilmu Keolahragaan Indones.*, Vol. 8, No. 2, Pp. 57–62, Jan. 2019, Doi: 10.15294/Miki.V8i2.17184.
- [27] Suharsimi Arikunto, *Prosedur Penelitian Suatu Pendekatan Praktek [Research Procedures A Practice Approach]*. Jakarta: Rineka Cipta, 2013.
- [28] S. Hadi, *Statistik II [Statistics Ii]*. Yogyakarta: :Yayasan Penerbit Fakultas Fisiologi Universitas Gadjah Mada, 2004.
- [29] I. Etikan, “Comparison Of Convenience Sampling And Purposive Sampling,” *Am. J. Theor. Appl. Stat.*, Vol. 5, No. 1, P. 1, 2016, Doi: 10.11648/J.Ajtas.20160501.11.
- [30] M. Sajoto, “Pengaruh Latihan Pliometrik Terhadap Hasil Tendangan Bola Siswa Sekolah Sepak Bola Ikip Semarang [The Effect Of Plyometric Exercise On The Results Of Football Kicks At The Ikip Semarang Football School Students],” *J. Ilmu Pendidik.*, Vol. 6, No. 1, 2016.
- [31] R. Abrasyi, H. Hernawan, B. Sujiono, And D. Dupri, “Model Latihan Passing Bawah Bola Voli Pada Siswa Sekolah Menengah Pertama [Volleyball Bottom Passing Training Model For Junior High School Students],” *J. Sport Area*, Vol. 3, No. 2, Pp. 168–178, Dec. 2018, Doi: 10.25299/Sportarea.2018.Vol3(2).2135.
- [32] S. Sudarsono, “Penyusunan Program Pelatihan Berbeban Untuk Meningkatkan Kekuatan [Compilation Of Weighted Training Programs To Increase Strength],” *Ilm. Spirit*, Vol. 12, No. 1, Pp. 31–43, 2015.
- [33] R. Fahmi Ashari Spto Adi, “Pengembangan Model Latihan Menyerang Futsal Menggunakan Formasi 3-1 [Development Of A Futsal Attacking Training Model Using A 3-1 Formation],” *Sport Sci. Heal. |*, Vol. 1, No. 2, P. 2019, 2019.
- [34] Mislan And D. A. Santoso, “Peran Pengembangan Media Terhadap Keberhasilan Pembelajaran Pjok Di Sekolah [The Role Of Media Development On The Success Of Pjok Learning In Schools],” *Pros. Semin. Nas. Iptek Olahraga*, Pp. 12–16, 2019.
- [35] B. B. Mishra, S. Gautam, And A. Sharma, “Shelf Life Extension Of Sugarcane Juice Using Preservatives And Gamma Radiation Processing,” *J. Food Sci.*, Vol. 76, No. 8, Pp. M573-8, Oct. 2011, Doi: 10.1111/J.1750-3841.2011.02348.X.
- [36] E. L. Y. Lee, N. F. A. Malek, K. Tan, R. S. Pratama, N. I. Mohamad, And A. Md Nadzalan, “The Effects Of Unilateral Versus Bilateral Resistance Training On Bilateral Deficit, Unilateral And Bilateral Strength Adaptation Among Trained Men,” *J. Phys. Conf. Ser.*, Vol. 1793, No. 1, 2021, Doi: 10.1088/1742-6596/1793/1/012057.
- [37] B. S. Hawindri, “Pemanfaatan Panduan Latihan Teknik Dasar Futsal Bagi Atlet Pemula [Utilization Of Basic Futsal

- Technique Training Guides For Beginner Athletes],” *Sport Sci. Heal.*, Vol. 11, No. 4, Pp. 284–290, 2016.
- [38] A. Ramadhan And A. Bulqini, “Analisis Receive Pada Pertandingan Final Sepak Takraw Pomda Jatim 2017 [Analysis Of Receive In The Final Match Of Takraw Pomda Jawa Timur 2017],” *Jses J. Sport Exerc. Sci.*, Vol. 1, No. 1, P. 13, Mar. 2018, Doi: 10.26740/Jses.V1n1.P13-19.
- [39] N. Ihsan, Y. Yulkifli, And Y. Yohandri, “Instrumen Kecepatan Tendangan Pencak Silat Berbasis Teknologi [Technology Based Instrument Of Pencak Silat Speed Kick],” *J. Sositologi*, Vol. 17, No. 1, Pp. 124–131, Apr. 2018, Doi: 10.5614/Sostek.Itbj.2018.17.1.12.
- [40] G. K. Cahyaningrum, E. Asnar, And D. T. Wardani, “Comparison Of Combination Exercise Shadow With Drilling And Strokes Of Reaction Time And Smash Accuracy,” *Agustus*, Vol. Lolos, 2018.
- [41] M. (2014). Nusufi, “Korelasi Antara Koordinasi Mata-Kaki Dengan Kemampuan Sepak Sila Dalam Permainan Sepak Takraw Atlet Klub Dondong Merah Tahun 2014 [The Correlation Between Eye-Foot Coordination With The Ability Of Precepts In The Game Of Sepak Takraw Athletes Of Dondong M,]” *Pap. Knowl. . Towar. A Media Hist. Doc.*, 2014.
- [42] N. Ahmad, “Pengaruh Latihan Zig Zag Run Terhadap Kelincahan Atlet Pencak Silat Tapak Suci Lebong [The Effect Of Zig Zag Run Exercise On The Agility Of Pencak Silat Athletes In Tapak Suci Lebong],” *J. Phys. Educ. Heal. Recreat.*, Vol. 2, No. 2, P. 181, Apr. 2018, Doi: 10.24114/Pjkr.V2i2.9589.
- [43] B. Indrayana, “Perbedaan Pengaruh Latihan Interval Training Dan Fartlek Terhadap Daya Tahan Kardiovaskular Pada Atlet Junior Putra Taekwondo Wild Club Medan 2006/2007 [Differences In The Effect Of Interval Training And Fartlek On Cardiovascular Endurance In Male Junior ,]” *J. Cerdas Syifa*, Vol. 1, No. 1, Pp. 1–10, 2012, Doi: <https://doi.org/10.22437/Csp.V1i1.699>.
- [44] A. A. Wahyudi And T. Hidayat, “Pengaruh Tingkat Konsentrasi Siswa Terhadap Hasil Belajar Passing Bawah Bolavoli Pada Peserta Eksrakurikuler Putra Smk Negeri2pamekasan Tahun Pelajaran 2017/2018 [The Influence Of Student Concentration Levels On Learning Outcomes Of Volleyball Underpassin,]” *J. Pendidik. Olahraga Dan Kesehat.*, Vol. 6, No. 1, Pp. 88–93, 2018.