



The Effect of Hanging Ball Training Method to Improve *Kedeng* Smash Skill of *Sepak Takraw* Athletes in *Panca Event* Games

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Abstract. Improving technical and physical ability is one of the *sepak takraw* exercises. Hanging ball media is a simple method that can be used. The study aimed to put the hanging ball training method to the test to improve the skills of *sepak takraw* athletes in the *Panca Event* game to smash *kedeng*. An experiment with field testing and a one-group pretest-posttest design was employed as the research method. *Sepak takraw* athletes totaling 15 athletes were the research subjects. Data were gathered through observation and tests. The data were analyzed descriptively using paired sample t-test with the help of SPSS version 23. The research instrument was a test of smash skill. According to the research findings, the pretest average value was 1.83, the posttest average value was 3.87, the difference value was 8.41, and the significant value was $0.000 > 0.05$. The results revealed that the hypothesis test was accepted with the average value and difference in the posttest which was greater, indicating that there is a significant difference between the pretest and posttest. The exercise with hanging ball media was found to be effective in improving *kedeng* smash skill in *Panca Event sepak takraw* athletes. According to the findings of this study, the hanging ball method is recommended to be used as one of the training methods for improving technical skills in *sepak takraw*.

Keywords: Training Method · Hanging Ball · Smash Skill · *Sepak takraw*

1 Introduction

Sepak takraw is a game sport performed by two male and female teams of three players each (Wibisono, Indriarti & Daniati, 2020). “Sepak” can be translated as a kick, while “takraw” is a rattan ball in Thai (Zarei & Ramkissoon, 2021). *Sepak takraw* was formerly solely played in the kingdom, but over time, it evolved into a recreational and achievement sport (Asmawi, Hanif, & Bon, 2019).

Of course, various procedures and factors influence the achievement of *sepak takraw*. Good technique is an essential component in *sepak takraw*. According to some experts, to thrive in the sport of *sepak takraw*, basic methods must first be mastered before moving on to more sophisticated ones (Asmawi, Hanif, & Bon, 2019; Čoh et al., 2004; Sukmana, Mutohir & Muhyi, 2021). According to a prior study, *sepak takraw* athletes must learn kicking methods such as *sepak kuda*, *sepak badek*, *sepak bungkil*, and *sepak sila*, as well

as heading, blocking, serving, and smashing (Adrian & Heru, 2020; Rohman Hidayat, 2018; Heriansyah, Adelian & Suhartiwi, 2017; Muhyi et al., 2021).

The smash is one of the specific skills of *sepak takraw* (Rahaji et al., 2017). Smash is the last and most critical movement in attack work (Wibowo et al., 2017). Failure to hit the ball towards the opponent opens up the opportunity for the opposing team to counterattack. In *sepak takraw*, attacks or smashes are the ability of a person to hit the ball hard and bend and use lawful limbs to the opponent's region (Rafsanjani & Saparia, 2018). The smash's success is defined as providing value to the team that performed the smash or the opportunity to move the ball back after the opponent has served. On the other side, if the smash fails, the opponent will be able to attack again. The smash plays a crucial role in a game or match (Jufrianis, 2019).

In the game of *sepak takraw*, the stages of the smash movement can be stated that to be able to do a smash well involves mastery of jumping, kicking techniques, and the accuracy of directing the ball at the target (Pratama, 2018). As a result, being a good smasher requires extensive training by adhering to a structured training program that is pertinent to the fundamental methods that will be developed in the sport of *sepak takraw* (Astra, 2017). Therefore, students or athletes must be skilled at smashing. Given the importance of smash in the game of *sepak takraw*, numerous efforts must be made to perfect the smash method (Jufrianis, 2019). These efforts involve the use of proper training methods as well as the development of aspects that aid in the execution of these strategies (Atmaja & Anggorowati, 2019).

Physical aspects to enable the implementation of special smash techniques to include features of strength, speed, explosive power, and flexibility. Physical exercise can help athletes improve their skills to play *sepak takraw* (Pratama, 2018). The term physical exercise refers to an exercise program that is carried out methodically, organized, and progressively to improve the functional skills of the body system so that the athlete's achievement will improve with these physical conditions (Rezaei et al., 2013). Weight training is a type of physical exercise that is widely employed by athletes who have received special skills training. Weight training is tailored to the environment and requirements.

Given the realities of the situation, the infrastructure for physical exercise is poor, particularly for weight training, thus a solution and innovation are required to train to smash with weight training for *sepak takraw* athletes. Thus, a simple loading exercise with hanging ball media was discovered.

Hanging ball smash practice is a type of exercise that has been purposefully adjusted to create some variation in smashing (Mahandra & Ridwan, 2019). A stationary ball will not help anyone concentrate while training. Objects that do not move are easier to manipulate, and the emphasis is placed on these objects rather than on moving objects (Hermanto, 2017).

According to Mahandra and Ridwan's (2019) research, training with hanging media improves service. This is consistent with the findings of Pernandes and Sutisyana (2018) who discovered that leg muscle training with a hanging ball for one month, two weeks, and three times per week has a significant effect on smash *kedeng* in *sepak takraw*. Based on a prior study indicating that the hanging ball method is effective for enhancing

smashes, the researchers will apply the hanging ball approach to *sepak takraw* athletes to improve smashes.

There have been many studies on hanging balls, but the sample size, number of participants, degree of ability, and treatment area are all different, therefore this research can be considered novel. This is consistent with the earlier opinion that research can be considered novel even if it is identical to previous studies but was conducted in different places, times, and situations (Noor, 2021). The objective of the research was to test the hanging ball training method on the ability of the *sepak takraw* based on the problems presented.

2 Methods

A field testing experiment was used as the research method (Yulianto & Yudhistira, 2021). The research design used in this study was a one-group pretest-posttest design (Knapp, 2016). The population in this study included up to 15 athletes of PON 2020 Central Java in the representative *sepak takraw* sport from Semarang. This population was chosen because Semarang has more representation than other regions. In this study, a saturated sample was used, which means that all populations were used as research samples. In this study, the sample size was 15 persons. Direct observation and tests of smash activities on athletes with smash skill instruments were employed to collect data. Meanwhile, the paired sample t-test was used to assess the data. If the probability value is less than 0.05 (sig 0.05), the hypothesis is accepted, while the hypothesis is rejected if the probability value is larger than 0.05 (sig > 0.05).

2.1 Findings

The following data was acquired from the measurement of smash skill, which was converted into points in the pretest and posttest stages with 15 athletes.

Table 1 shows the smash skill test data from the pretest and posttest results for *sepak takraw* athletes. The greatest score in the pretest is 3, the lowest score is 1, the average is 1.83, and the standard deviation is 0.697. Furthermore, the greatest score in the posttest is 6, the lowest score is 3, the average is 3.87, and the standard deviation is 0.07.

The difference data, t_{count} value, and significance value are presented in Table 2. It is shown that the difference value is 2.03, the t_{count} value is 8401, and the significance value is 0.000.

Table 1. The decryption of Smash Skill

Aspect	Pre-test	Post-test
Highest score	3	6
Lowest score	1	3
Average	1,83	3,87
Standard deviation	0,697	1,07

Table 2. Hypothesis Test Results

Group	Mean	Difference	T _{count}	Sig
Pre-test	1,83	2,03	8,401	0,000
Post-test	3,87			

2.2 Discussion

The test results revealed that the lowest score in the pretest was 1. The athlete's best score for scoring points from the smash was 3 points. The smash yielded an average of 1.83 points from 30 athletes. The standard deviation value was 0.697, which is lower than the population. It means that athletes' point distribution is not evenly distributed.

The post-test measurement findings revealed the smash results with the highest 6 points. The lowest point total for an athlete's smash was 3. The smash scored 3.87 points on average, with a standard deviation of 1.07. The findings of this posttest show that the athlete's smash skill has improved. Significant differences in smash skill were discovered throughout the pretest and posttest stages where the hypothesis test was performed.

According to the results of hypothesis testing, there was an average difference in the athlete's smash skill of 2.03. The test results yielded a t_{count} of 8.401 and a sig value of 0.000. The sig value was less than 0.05 (sig 0.05), indicating that the hypothesis is accepted. It implies a significant difference in the smash skill of *sepak takraw* athletes in the *Panca Event* game before and after training with a hanging ball. These findings suggest that hanging ball training improves the athletes' smash skills of *sepak takraw* in *Panca Event*.

Smash *kedeng* in *sepak takraw* is an essential element of the game and a special skill. The most essential thing to remember while training the *kedeng* smash skill in the game of *sepak takraw* is to acquaint the athlete so that they can do the smash in the real situation of playing *sepak takraw*. Exercises with hanging balls are designed to teach technical skills in real-world circumstances, allowing a player to improve his smash skills. Because the ball is hung, each individual can decide the height of the ball based on his ability as the hanging ball exercise can make *kedeng* smashes easier for athletes. In this exercise, the coordination between the senses of sight and the senses of motion which are supported by the position of the body that allows a can produce good coordination between the two.

A player is supposed to be able to determine the precision of hitting the foot with the ball when conducting a smash as this exercise motivates a higher hitting range, gives fun in training activities, and improves the athlete's smash skills. Smash can cause the opponent to lose badly, allowing the team to get more points. The *Panca Event sepak takraw* game consists of 5 players who must smash with accuracy and speed to get points. This is because the number of those who block has surpassed the other numbers *sepak takraw*.

Previous research backs up this finding. The research conducted by (Wiyaka, 2017) discovered that training with a hanging ball can improve the smash skill of *sepak takraw* athletes. Athletes have improved their smash skills after exercising with a hanging ball.

The hanging media training model can help *sepak takraw* athletes enhance their smash skills (Sutisyana, 2018). According to Hidayat's research (2022), training with hanging ball media can increase smash skills.

3 Conclusion

Based on the findings and discussions, it can be concluded that training with hanging ball media improves the smash skill of *sepak takraw* athletes in the *Panca Event* game. The posttest findings are superior to the pretest results. Based on the findings of this study, it is suggested that the hanging ball method be used as one of the training ways to develop the smash technique skill of athletes in *sepak takraw*.

References

- Adrian & Heru, 2020; Rohman Hidayat, 2018; Heriansyah, Adelian & Suhartiwi, 2017; Muhyi et al, 2021).
- Adrian Sya'ban, & Heru Syarli Lesmana. (2020). Overview of Basic Technical Skills and Special Techniques for ATC (Ambacang Takraw Club) Women's Athletes in Sepak takraw. *Patriot's Journal*, 3(1), 26–37
- Astra, I. K. B. (2017). Developing Instructional Material for Sepak takraw Playing Technique Course Completed with Smart Audiovisual to Improve Competencies of the Students of Sport & the Health Education Department Ganesha University of Education. *International Research Journal of Engineering, IT and Scientific Research*, 3(4), 66–76. <https://doi.org/10.21744/irj.eis.v3i4.506>
- Asmawi, M., Hanif, A. S., & Bon, A. T. (2019). Model Teaching Style and Motor ability on Sport Science Student Achievement Learning Outcome Sepak takraw
- Atmaja, N. M. K., & Anggorowati, K. D. (2019). Pengembangan Model Permainan Sepaktakraw Sebagai Pembelajaran Pendidikan Jasmani. *Jurnal Pendidikan Jasmani Kesehatan Dan Rekreasi (Penjaskesrek)*, 6(1), 1–13. <https://doi.org/10.46368/jpkr.v6i1.148>
- Čoh, Milan, et al. (2004). Motor Learning In Sport. *Physical Education and Sport*, vol. 2, no. 1, pp. 45–49
- Hermanto, Y. (2017). Pengaruh Latihan Bola Gantung Terhadap kemampuan Servis Atas Pada Klub Sepaktakraw Yuniior Panggul Kabupaten Trenggalek Tahun 2016. *Jurnal Keolahragaan*.
- Hidayat, M. (2022). Upaya peningkatan kemampuan smash dalam permainan sepak takra melalui media bola gantung kelas x smkn 6 luwu (Disertasi Doktor, Universitas Muhammadiyah Palopo).
- Heriansyah, Adelian & Suhartiwi. (2017). *The Game of Sepak takraw, History, Basic Techniques, Game Rules, and Refereeing*. Jakad Media Publishing.
- Jufrianis. (2019). Model of the physical condition of leg muscle explosive power, nutrition status, and confidence towards skill smash sepaktakraw. *Proceedings of the International Conference on Industrial Engineering and Operations Management*, 2062–2069.
- Knapp, T. R. (2016). Why is the one-group pretest-posttest design still used? *Clinical Nursing Research*, 25(5), 467-472.
- Mahandra, S., & Ridwan, M. (2019). Latihan Bola Gantung Berpengaruh Terhadap Kemampuan Servis Sepaktakraw. *Jurnal Patriot*, 1(2), 851-858.
- Muhyi, M., Hanafi, M., Sukmana, A. A., Utamayasa, I. G. D., & Prastyana, B. R. (2021). The effectiveness of krwanjang game implementation on sepak sila's skills in sepak takraw game at Surabaya sepak takraw academy. *Jurnal SPORTIF: Jurnal Penelitian Pembelajaran*, 7(3), 367-377.

- Noor, M. (2021). Novelty/Kebaruan Dalam Karya Tulis Ilmiah Skripsi/Tesis/Disertasi . *Mimbar AdministrasiI Fasio Untag Semarang*, 18(1), 14-23.
- Pernandes, A., & Sutisyana, A. (2018). Pengaruh Latihan Bola Gantung Terhadap Kemampuan Smash Kedeng Dan Smash Gulung Dalam Permainan Sepak takraw Pada Atlet Psti Kabupaten Lebong. *Kinestetik: Jurnal Ilmiah Pendidikan Jasmani*, 2(1), 89–96.
- Pratama. (2018). Pengaruh Metode Latihan Box Jump Dan Panjang Tungkai Terhadap Hasil Smash Pada Atlet Sepak takraw Pplp Jawa Tengah. *Jendela Olahraga*, 3(1). <https://doi.org/10.26877/jo.v3i1.2032>
- Rafsanjani, M., & Saparia, A. (2018). Pengaruh latihan otot tungkai terhadap kemampuan melakukan smash kedeng dalam permainan sepak takraw kelas XI di SMAN 9 Sigi. *Tadulako Journal Sport Sciences and Physical Education*, 6(6).
- Rahaji, J., Simanjutak, V., & Hidasari, F. (2017). Hubungan antara power dan flexibiliy otot tungkai terhadap hasil smash kedeng sepak takraw di SMA. *Jurnal Pendidikan Dan Pembelajaran Khatulistiwa*, 6(10). <http://jurnal.untan.ac.id/index.php/jpdpb/ar>
- Rezaei, M., Mimar, R., & Paziraei. (2013). Talent identification indicators in sepaktakraw male elite players on the bases of some biomechanical parameters. *Middle East Journal of Scientific Research*, 6(7), 936–941. <https://doi.org/10.5829/idosi.mejsr.2013.16>
- Rohman Hidayat. (2018). The effect of self-based practice and feedback from friends on smash in sepak takraw for male athletes in Banyumas regency in 2018. *Proceedings of the National Seminar on the Theme of Sustainable Rural Resource Development and Local Wisdom VIII*, 14–15.
- Sutisyana, A. (2018). Pengaruh Latihan Bola Gantung Terhadap Kemampuan Smash Kedeng Dan Smash Gulung Dalam Permainan Sepak takraw Pada Atlet Psti Kabupaten Lebong. *Kinestetik*, 2(1).
- Sukmana, A. A., Or, M., Mutohir, T. C., & Muhyi, M. (2021). *Permainan krawnjang kids takraw Indonesia*. Jakad Media Publishing
- Wibisono, A., Indriati, R., & Daniati, E. (2020, August). Sistem Seleksi Atlet Sepak takraw Keranjang. In *Prosiding Semnas INOTEK (Seminar Nasional Inovasi Teknologi)* (Vol. 4, No. 3, pp. 089–094
- Wibowo, R., Rumini, & Rustiana. (2017). Pengaruh Metode Latihan dan Koordinasi Mata Kaki terhadap Kemampuan Smash Kedeng dalam Permainan Sepak Takra. *Journal of Physical Education and Sports*, 6(2), 193–197.
- Wiyaka, I. (2017). Perbedaan Pengaruh Hasil Belajar Smash Sepak takraw Dengan Menggunakan Metode Bola Digantung Dan Bola Diumpkan Pada Mahasiswa Pko. *Jurnal Prestasi*, 1(1). <https://doi.org/10.24114/jp.v1i1.6491>
- Yulianto, W. D., & Yudhistira, D. (2021). Content Validity of Circuit Training Program and Its Effects on The Aerobic Endurance of Wheelchair Tennis Athletes. *International Journal of Kinesiology and Sports Science*, 9(3), 60-65.
- Zarei, A., & Ramkissoon, H. (2021). Sport tourists' preferred event attributes and motives A case of Sepak takraw, Malaysia. *Journal of Hospitality & Tourism Research*, 45(7), 1188-1213.

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