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# Effectiveness Return Board To Improving Forehand Drive Table Tennis. In Jawa Tengah

# Tabla De Retorno De Eficacia Para Mejorar El Tenis De Mesa Con Drive De Derecha. En Jawa Tengah

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**Resumen.** Las técnicas son un conjunto de formas que se utilizan como pautas para que cada movimiento sea más fácil de practicar y los resultados sean más perfectos. Este estudio tiene como objetivo descubrir la efectividad de la influencia del entrenamiento del drive de derecha en el tenis de mesa utilizando medios de tablero de retorno. Los investigadores llevaron a cabo el método experimental dando tratamiento a 120 estudiantes. Los resultados de la investigación muestran que la variable habilidad del golpe de derecha influye en la práctica de utilizar medios de tablero de retorno. Esto se desprende de un aumento en el valor promedio del pretest 21,42 y el postest 25,03 aumentó en 3,62. Además, visto de los resultados de la prueba T entre el pretest y el postest, se obtuvo un valor sig = 0,000, lo que significa < 0,05, por lo que Ho rechazó y Ha aceptó. Esto influye en el nivel de golpe de derecha antes y después del ejercicio. Se puede concluir que el entrenamiento de rebote tiene una influencia significativa en la mejora de las habilidades de patada de derecha en comparación con antes del entrenamiento.
Palabras clave: Drive de derecha, Tenis de mesa, Tablero de devolución, Estudiantes

**Abstract.** Techniques are a set of ways to be used as guidelines so that each movement is easier to practice and more perfect results. This study aims to find out the effectiveness of the influence of forehand drive training on table tennis using return board media. The researchers conducted the experimental method by giving treatment to 120 students. Research results show that the skill variable forehand drive influences the practice of using return board media. This is seen from an increase in the average value of pretest 21,42 and posttest 25,03 increased by 3,62. Besides, seen from the T-test results between the pretest and posttest, obtained sig value = 0,000, which means < 0,05, thus Ho rejected and Ha accepted. This there's an influence on the level of forehand drive punching before and after the exercise. It can be concluded that rebound training has a significant influence on the improvement of the forehand drive kicking skills compared to before training.
**Keywords**: Forehand Drive, Table Tennis, Return Board, Students

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## Introduction

Table tennis is a game that uses tables, bets, and balls as its tools. This game begins by reflecting the ball to its area on the table then passing the net and passing the ball into the opponent's area (Sari & Antoni, 2020). Table tennis itself involves two or four players (Rafdi, 2020). This game is played on a table divided by the net, the player must reflect the ball onto the table and then the opposition haeus returns to the counterpart's table (As, 2020). This sport is fast and requires the skill of placing the ball and playing the ball that changes the direction of the ball's reflection so that the counter will be difficult to return it (Bańkosz & Winiarski, 2020).

Techniques are a set of ways to be used as guidelines so that each movement is easier to practice and more perfect results. Each sport must have a technique to start from the most basic stage and used as a guideline to practice the sport (Hendrawan et al., 2022). In mastering the table tennis technique also pay attention to the rotation of the ball (Zhang et al., 2022). Table tennis requires agility, quick reflex movements, good eye coordination, and careful game strategy (Apriyanto & S, 2022).

This game consists of different strikes, attacks, defenses, and service techniques (Faris et al., 2022). To play table tennis, some basic techniques need to be mastered first: (1) grip, (2) stance or body position, (3) service technique, (4) footwork, and (5) punch (Setiawan et al., n.d.). There are four techniques in holding a grip on the right bet, namely forehand grip, backhand grip, American grip, and combination grip (Maheshwari et al., 2022). Forehand grips are the basic grip or punch and are commonly used, these forehands are done on the player's right side. The advantages of forehånd include a strong grip because the finger holds a grip perfectly. In addition, forehand grip or grip makes it easy for the player to hit the ball or return the ball coming from the right side of the body (Sahabuddin et al., 2022).

Forehands prefer the speed of hitting the ball, so this technique is quite powerful and used to attack the opponent (Irjaba et al., 2022). Although the forehand technique is a common technique used in table tennis, the initial position of the body must be mastered, that is, the vertical position against the opponent, then to match the bet there are two events such as the penholder grip and the shakehand grip(Apriyanto & S, 2022; Irawadi & Yusuf, 2019). In this way, the shot will be targeted precisely towards the opponent. (Binedell et al., 2020). Forehand drive are frequently used by table tennis players to launch attacks (Picabea et al., 2023). There are several kicking techniques in table tennis, one of which is the drive technique which technique is a kick with the smallest friction force. Drive initially with a bet movement from bottom to top with a closed bet (Faris et al., 2022; Firdaus & Mario, 2022; Mao et al., 2023). Forehand drive is a punch with the longest swing of the hand, so this punch results in a fast, hard, and horizontal ball (Wang, 2023). Forehand drive is the strongest shot, besides the power used is also more than a backhand kick.

Forehand strokes are the most powerful shots because the energy released is maximized compared to backhand strokes (Asri, 2020). Forehand drive is the most basic punch in a table tennis game (Firdaus & Mario, 2022). This punch is done to return an aggressive punch or attack and land the ball with the opponent's sideline (Rahman, 2020). With the forehand drive, the position of the body can be rotated to the back to increase the strength of the ball (Kong & Yam, 2022). The power of a forehand strokes is typically greater than that of a backhand stroke due to the wider and longer reach of the arm. Additionally, the angle of a backhand strokes is more limited compared to a forehand strokes (Batubara, 2019). This is because the arm's reach is restricted when hitting a backhand stroke, as it is pulled towards the body. A backhand shot is executed when the ball is to the left of the player's body. The backhand is a stroke with limited movement due to being blocked by the body. As a result, a ball hit with a backhand is slower than a forehand strokes (Pranata & Widiastuti, 2018).

Forehand drive is also known as a drive-kicking technique that is performed by moving the bet first forward, followed by rotating the body about 30 degrees (Babar et al., 2021). It can be concluded that a forehand drive stroke is a stroke performed if the ball is on the right side of the body and the palm is facing forward (Babar et al., 2021; Firdaus & Mario, 2022; Kong & Yam, 2022; Rahman, 2020). The purpose of the forehand drive itself is to score points, if someone has a good skill in the technique of the striking of forehands then will make an attacker's tool to get points or scores (S. A. Pratama, 2021).The advantage of a forehand drive in table tennis also gets a powerful kick output besides that it is also used to attack or return the ball quickly straight or flip (Mappaompo & Aprilio, 2022; Simopoulos et al., 2023). In terms of ball speed, forehand strokes produce faster ball speeds than backhand strokes in male and female professional athletes. (Genevois et al., 2015).

Improving or developing forehand drive techniques in table tennis can be done through the repetition of forms of skill techniques learned and supported by the necessary physical condition factors as well as the use of appropriate training methods (Babar et al., 2021; Bańkosz & Winiarski, 2020; Mao et al., 2023). Drill training can be understood as a way of teaching students in which students can perform activities – Training activities, to have better agility or skill than what has been learned. Then this exercise is done regularly to improve the mastery of skills in the technique of forehand drive (Irawadi & Yusuf, 2019). Sports training should go through a structured, sustainable building process, and should be supported by applied science and sports technology (R. S. Pratama et al., 2019). Technology in sport is used to take sport to the next level with the help of modern science or modern precision in sport (Torres-Ronda et al., 2022).

Sports technology can also be understood as the use of tools or devices in competition that are created integrally through action, and thinking to a value or use in sport (Le Noury et al., 2022; Won et al., 2023). Sports technology serves as a support for the performance and protection of athletes while competing (Cojocaru et al., 2022). The development of sports technology enables sports equipment to be more up-to-date, efficient, easy to use, and have more use value (Yang & Cole, 2022). In the development of technology in sports can be perceived by everybody more in this research can be used to find out the efficiency of the technique of forehand drive through media return board (Buonsenso et al., 2023). Table tennis teaching in the world of education and the club is fully running well but in enhancing creativity in sports technology then it can be used return board media as a substitute for an instructor or opponent for the stage of drill in table tennis technique (Sudrajat et al., 2019).

Return table media is chosen as a tool in the development of techniques as well as sports technology because the surface is structured, non-wavelets, and can be adjusted in any direction so that the simple can easily train basic techniques forehand drive. The development of sports in Indonesia of course has a supportive aspect that makes the progress of sports faster and faster (Firdaus & Mario, 2022; Prabowo et al., 2022). Related to the problem that will be investigated concerning the effectiveness of forehand drive using return board media, this drill training is a method that can improve the skills in doing forehand drive using reflected board media (Kurniadi et al., 2020). Table tennis requires physical strength to get faster in practice and to be able to higher performance, master technique, tactics, or strategy in table tennis (Kondrič et al., 2013; Shinkai et al., 2022; Zhou, 2022). Proper training development as well as continuous training or drill training on forehand drive techniques can support the process to the maximum and can enhance the knowledge attained. Therefore here the author will study how the effectiveness and efficiency of the forehand technique drive table tennis through the return board media (Fauzan, 2022; Nugroho et al., 2023).

The observations that have been made are still many samples of table tennis players who put themselves to face directly with the return board as a drill training tool (Setiawan et al., n.d.). Research conducted by (Teguh Santosa, 2016) entitled "Development of Return Board Aids for Forehand Topspin Table Tennis" with the results found is the product development of return board aids can be used to improve table tennis forehand topspin shots in novice athletes with effective accuracy is 53% and the advanced group has 32% effectiveness (Santosa, 2016). The researchers also found this after observing a class of 25 student athletes, unfamiliar with the sport of table tennis, who would take a table tennis practice exam, where prior to the implementation of the exam, the participants were given the opportunity to practice independently for 12 sessions in the hope that all students would pass the exam. At the time of the exam, 76% or 19 students passed and 24% or 6 students failed. Based on the results of these percentages, training with backspin media can improve students' forehand skills and produce shots that meet the baseline. However, there

are also some students who are still lacking in maximizing the training with the bounce board in the forehand drive technique.

Research on improving forehand drive skills has been extensively conducted using various training methods. According to Kadeira (2021), the multiball training method

students at SMP Negeri 1 Tanjung Batu (Asri, 2020). The t-test results showed a difference between the pretest and posttest scores, with an average increase from 9.45 to 11.3, or 1.85. According to Luthfi Abdul Faris (2022), training with the life kinetic method significantly improves the forehand skills of students in the Universitas Pendidikan Indonesia (Faris et al., 2022). Previous studies have also shown that various forms of exercise can be used to enhance forehand drives.

Researchers are interested in studying training methods for improving the forehand drive in table tennis. Specifically, they are interested in the use of return bord media as a training method, as there is currently no research on its effectiveness for improving forehand drive ability in sports students. This study aims to determine the effect of using the return bord training method to improve forehand drive ability. The results of this study will serve as a reference for future forehand drive training.

## Material & methods

The method used in this research is the experimental research method (Ardiansyah et al., 2023). Experimental research is a study aimed at determining the influence of treatment given and then conducting a test analysis (Jimenez-Marcos et al., 2022). This study employs a one-group pretest-posttest design. The experimental group receives a 12-session treatment. Prior to the treatment, a pretest is conducted to measure the initial ability of the students' forehand drive. At the end of the treatment, a posttest is conducted to determine whether there is an improvement in the ability of forehand drive among sports students in Central Java.

The population refers to the entire object or subject that the researcher has identified for study and from which conclusions are drawn (Sugiyono, 2019). Sampling is essential in this study due to the large population, limited time, cost, and other obstacles. The purpose of determining the sample is to study the characteristics of the population (Hidayat, 2015). The study employed purposive sampling, a type of nonprobability sampling that selects samples based on specific criteria (Sugiyono, 2019). When selecting the research sample, the researchers considered specific criteria. These included: 1) sports students who attend table tennis lectures, 2) students who have received or are currently receiving table tennis training, and 3) students who possess basic table tennis techniques. The subject of this study is 120 sports students in Jawa Tengah.

The data collection tool used in this study is a precision capability tool to guide table tennis with return board media to measure the accuracy of the technique through the return

has a significant positive effect on the forehand drive skills of table tennis athletes in Makota Malang, with a correlation value of 0.230 (Kadeira, 2021). According to Asri (2020) research, training forehand skills by hitting a wall has a significant impact on improving the forehand drive skills of

panel media. This study uses designs namely one group pretest and posttest design, that is, experiments in this study with only one group and no comparison groups (Sugiyono, 2019). As for the plan, it can be described as follows:

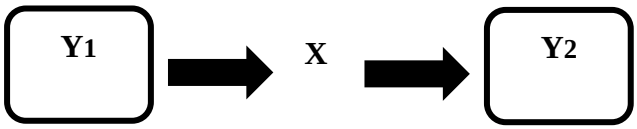


Figure 1. Research Design

Description:
Y1 : Initial measurement (pretest)
X : Treatment (treatment)
Y2 : Final measurements (posttest)

***Anatomy Product Return Board***

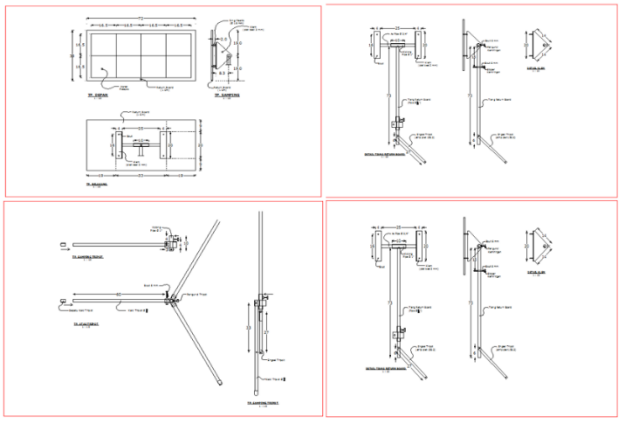

Figure 2. Anatomy Product Return Board

This is anatomy product return board. We already develop this product and we make a video for this product. Video return board can see in this link https://m.youtube.com/watch?v=PyzQVFQcYPI&pp=ygUEUkJGVA%3D%3D. This video explains how this tool works. An explanation of the procedures for how this tool functions has also been explained in the video. The purpose of this tool was developed to help trainers in helping athletes train table tennis stroke speed, especially forehand drives and this tool can help increase the speed of table tennis athletes. Tool specifications:

1. Board width 60 cm and board length 80 cm.
2. The height of the tool is 120 cm according to the height of the opponent's bat position.
3. The slope of the board can be adjusted according to the training needs.

How to use the tool:

1. The equipment is installed with a slope of 70-80 degrees and the distance between the board and the table is 30-40 cm.

2. Athletes stand facing the return bord.
3. Athletes hit a forehand drive towards the pantu target, namely the return bord tool.
4. Athletes do repeatedly until they have good forehand drive skills.

## Results

The research was conducted to determine the impact of forehand drive training on table tennis using return board media, with a total of 120 respondents. The results of this study are described as follows:

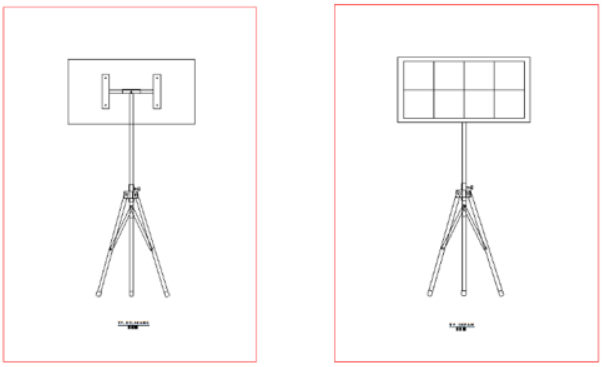

Figure 3. Return Board for Table Tennis

Table 1.
Data distribution Results Pretest and Postest Forehand Drive

| | Pretest | Postest |
|---|---|---|
| N | 120 | 120 |
| Mean | 21,42 | 25,03 |
| Std. Deviation | 5,278 | 5,449 |
| Minimum | 12 | 15 |
| Maximum | 33 | 38 |

Based on the results of the pretest forehand drive performed by 120 respondents obtained an average of **21,42** with a standard deviation of **5,278.** The highest score was **33** and the lowest score was **12**. While the result of the posttest forehand drive obtains an average of **25,03** with a standard deviation of **5,449.** The highest point was **38** and the lowest score was **15**.

### *Prerequisite Test*

Pre-conditional tests include normality tests and homogeneity tests. Normality tests are used to determine whether the distribution of data is normal or abnormal, while homogeneity tests are performed to determine if the sample of the researcher comes from a homogenous population.

### *Normality Test*

When the value of significance **> 0,05** = normal distribution and the significance value **< 0,05** = abnormal distribution. Based on the output of the normality test, the result of the pretest has a significance of = **0,162** and the posttest is = **0,074**. Thus, the data of the pretest and postest are normally distributed.

Table 2.
Normality Test

| | Kolmogorov-Smirnov[a] | | |
|---|---|---|---|
| | Statistic | df | Sig. |
| Pretest | 0,074 | 120 | 0,162 |
| Postest | 0,077 | 120 | 0,074 |

### *Homogeneity Test*

If the significance value is **> 0,05**, then the data distribution is homogeneous, and if the significant value is **< 0,05** then the distribution of the data is not homogenous. Based on the results of the research data, the value of significance = **0,972** is obtained.

Table 3.
Homogeneity Test

| Levene Statistic | df1 | df2 | Sig. |
|---|---|---|---|
| 0,001 | 1 | 238 | 0,972 |

### *Hypothesis Test*

The hypothesis test uses the t-test which aims to see the impact of the reflex board training on the forehand drive stroke. Basic decision-making, when the Sig. (2-tailed) value is **< 0,05** which means there is a significant difference and if the Sig.2-tailing value is **> 0,05** then there is no significant difference.

Table 4.
Paired-Samples T Test Results

| Test | N | Paired Samples Statistics | Paired Samples Test |
|---|---|---|---|
| | | Mean | Sig. (2-tailed) |
| *Pretest* | 120 | 21,42 | 0,000. |
| *Posest* | 120 | 25,03 | |

Based on the Paired Samples Test output table between the pretest and posttest, sig = **0,000** is obtained, which means **< 0,05**, thus **Ho** is rejected and **Ha** is accepted. That means that there is an influence on the level of the forehand drive before and after the training. Based on the Paired Samples Statistics results, the average value of the pretest = **21,42** and the posttest = **25,03** is obtained. Thus, it can be concluded that rebound board training has a significant influence on improved forehand drive kicking skills compared to before training. As for the table of percentage increases in forehand drive hits below:

Table 5.
Percentage Enhancement

| Mean Difference | Mean Pretest | Percentage |
|---|---|---|
| 3,62 | 21,42 | 16,89% |

It was concluded that there was an improvement after given exercise or treatment of **16,89%** seen from the mean difference data of **3,62** and the pretest mean data of **21,42**.

## Discussion

This study aims to find out the level of effectiveness of the influence of exercise using return board media on the skills of forehand drive table tennis in sports students in Jawa Tengah. The results of this study were obtained

through both pretest and posttest data. The results from both tests showed an improvement in the skills of the forehand drive before and after the training. The improvement can be seen from the percentage division between the mean difference and the pretest mean, which was achieved by a **16,89%** increase.

Success in building athletic performance is not independent of training and teaching by coaches, lecturers, or other teachers. Table tennis often uses aids to support the training process. A variety of tools are increasingly needed in the training of technical skills of table tennis athletes (Jin et al., 2022; Yang & Cole, 2022). As the times evolved, the tools used became more and more diverse, such as the use of return board media (Santosa, 2016). This return board media is a simple and easy-to-do exercise alternative. The results can make it easier for athletes or practitioners to exercise (Montull et al., 2022; Nadzalan et al., 2021; R. S. Pratama et al., 2023). The ability to forehand drive is influenced by several factors, namely by a good and correct method of training (Lee et al., 2021; Sari et al., 2020). The quality of athlete training is a crucial factor in supporting their performance and overall success. (Sandbakk et al., 2023). Choosing the right method of training by the student's abilities will have an impact on improved forehand drive skills.

The accuracy of the drive stroke is very important in table tennis because this stroke is often used to get points (Wafa & Pratama, 2022). There are few table tennis players who can match the accuracy and ball placement of a skilled rally. Control and consistency are essential for hitting accurately (Park et al., 2022). The purpose of an accurate shot is to force the opponent to run for a ball that is out of reach, thus opening up the side court. It can also be used to win a rally or secure the winning point (Alamsyah & Tomoliyus, 2021).

The quality of training sessions and processes is influenced by various factors, including training load and restitution, athlete and coach expertise and experience, training peers, support staff, training environment, and training facilities. Optimal training results can only be achieved by athletes through perfect preparation, such as adequate sleep and healthy nutrition, and individualized training, including focus and intensity control (Sandbakk et al., 2023). This task demands a strong sense of responsibility for the training process, intelligence in training, motivation, and dedication (Jordalen et al., 2020). Intensive training cannot be considered sufficient unless it is accompanied by high-quality and substantial training (Asri, 2020). During training, it is recommended to observe a variety of exercises to prevent boredom and saturation (Riyoko, 2019; Velasco & Jorda, 2020).

Effective training methods that are repeated over time can improve forehand drive skills in table tennis (Asri, 2017). Table tennis has various training methods, including forehand training using a return board. This exercise involves using a return board to practice your forehand drive. The instructions are straightforward and easy to follow, 1) To set up the tool, place the return board on the opponent's table with a slope of 70-80 degrees and a distance of 30-40 cm between the board and the table, 2) The athlete should stand facing the return board and perform a forehand drive towards the target, which is the return board tool, 3) The athlete should then continue to perform forehand drives by bouncing the ball as much as possible in sequence using the forehand side of the bat. This training method is suitable for beginners as it improves their aim and helps them to maintain consistency in their shots by providing targets on the return board, allowing them to repeatedly hit the same shot and land it in the same place.

Based on the description above, it can be concluded that training with return board media is effective in improving forehand drive skills in sports students. Nevertheless, there are still some students who are not in line with what is expected because the students are not accustomed to using the return bord media. The use of return board in this study still has limitations because students are not accustomed to using new media as a means of training, requiring adaptation to the tool. Additionally, this study has limitations in the form of samples that are difficult to control due to their location in different training places.

## Conclusions

Exercises using return board media provide improvements to the forehand drive kicking skills of sports students in Central Java. This can be seen from the magnitude of the improvement before and after the treatment. The pretest scored an average of **21,42** and the postest **25,03** which showed an improvement of **3,62** or **16,89%** based on the division of the mean difference with the mean test. Thus, that exercise using reflector media influenced the improvement in the skills of the forehand drive. Based on the study results, it is hoped that all sports students can optimize their practice to improve their ability to hit forehand drives. Researchers can suggest further research in the future, such as using variations of other training methods to observe their effect on improving the ability to hit forehand drives. Researchers can offer techniques for both forehand and backhand drives, rather than focusing solely on forehand drives.

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