



The Contribution of Push Up and Pull Up Exercises to the Strength of 2-Point Shooting Throws in Basketball Players of Bintang Muda Club in Kendal District

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Abstract

The aim of this research is to determine how push-up and pull-up exercises contribute to the strength of 2-point shooting throws among players of the Bintang Muda Basketball Club in Kendal District. Weak arm muscle strength, which affects the accuracy and power of 2-point shots, is the main issue addressed in this research. This study uses a quantitative approach with a pretest-posttest experimental design and no control group. A sample of 20 individuals was used in this study. Data was collected through observation and measurement of 2-point shooting ability, and then analyzed using the Pearson Product Moment correlation test. The results showed that push-up and pull-up exercises had a significant impact and contributed meaningfully to the strength of the arm muscles and accuracy of 2-point shots for the players. A strong and significant relationship was found between the type of exercise and 2-point shooting strength, indicated by a correlation coefficient of 0.542 and a significance value of 0.014 (< 0.05). Therefore, push-up and pull-up exercises have a significant contribution to 2-point shooting strength in basketball and can be considered part of a physical training program to improve 2-point shooting techniques in basketball games.

How to Cite

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INTRODUCTION

Sports are a series of activities of motor skills (SN & Setiawan, 2020), including one of them is basketball. This game is played by two teams, the goal of which is to score points by putting the ball into the opponent's basket (Burhan & Herlina, 2022), with the characteristic of spontaneous movement and systematic attacks (Oktavia et al., 2024). Fans of all ages feel that basketball is fun, competitive, and healthy (Anam & Wicaksono, 2022). To play basketball well, this game requires physical endurance, reflex speed, and good body coordination, so that a combination of neatly coordinated movement elements is created (Andriyani & Wijayanti, 2025).

Every player must master some basic skills. One of these skills is dribbling, which is dribbling the ball by bouncing it on the floor using one hand or alternately while moving forward either walking or running; b) Passing, which is passing the ball to teammates to build a game strategy; c) Shooting, which is an attempt or trial to throw the ball towards the basketball basket to score points; and d) Pivot, which is a movement of rotating the body while still supporting one leg as the whole axis (Makarim, 2025).

In this sport, mastering techniques crucial base is very important because these techniques help form strategies used in matches. Every player must learn passing, dribbling, pivoting, and shooting techniques. Shooting technique is particularly important for scoring points (Fitrah et al., 2021). Success depends on the individual's ability to play effectively.

One of the most commonly used shooting techniques in matches is the two-point shot. This shot is taken from an area designated to give two points when the ball goes into the basket. This type of shot is generally preferred because it has a relatively higher success rate compared to three-point shots due to the shorter distance to the ring (Maulana, 2023). Typically, two-point shooting is performed with a lay-up motion, a combination of running, jumping, and throwing the ball towards the ring in a quick and precise sequence (Atmoko, 2021).

Two point shooting often appears easy but is not always successful in the field. Several factors cause players to struggle to perform well; one of them is a lack of arm strength. To provide a push and direction to the ball, arm strength is crucial. According to Mulyo (2020), weak arm strength results in less effective shooting and reduced shot accuracy. Consequently, the chance of scoring

decreases. Therefore, to improve performance, it is important to master this technique through physical exercise.

Pradina & Wahyudi, (2020) states that arm strength is very important in determining shooting accuracy. When throwing the ball toward the ring, the pectoralis major, deltoid, and triceps muscles act as the primary movers. These muscles must be able to produce a stable and directed force, which determines half of the throwing strength. Therefore, to improve basketball shooting ability, especially two point shooting, specific physical exercise is crucial.

Simple physical exercises can effectively increase arm strength, such as push-ups and pull-ups. Push-ups typically train chest, shoulder, and triceps muscles, while pull-ups train back and biceps muscles (Fanani, 2023). Both exercises are suitable for basketball players as they support shooting movements. The muscles used in two-point shots can be strengthened through regular training.

However, preliminary field assessments showed that players of Bintang Muda Basketball Club still had poor two-point shooting skills. Although technique training was carried out regularly, there was no significant improvement in match performance. Many shots missed the target or did not reach the ring, indicating that arm strength components were often overlooked during training, even though they greatly influence shooting quality (Sadheli, 2022).

This research aims to describe further the contribution of push-up and pull-up exercises to arm strength and two point shooting performance due to the importance of physical strength in shooting success. This research also aims to fill gaps in the literature, which has not thoroughly examined the specific relationship between these exercises and two point shooting skills. Thus, it is hoped that an effective training pattern can be obtained to increase the strength and shooting accuracy of basketball players.

Based on this background, the goal of this study is to determine whether push-up and pull-up exercises contribute to increased arm strength and two point shooting ability among Bintang Muda Basketball Club players in Kendal District. The hypotheses proposed in this study are as follows:

- There is a contribution of push-up training to the arm strength for two point shooting in Bintang Muda Basketball Club players in Kendal District.
- There is a contribution of pull-up training to the arm strength for two point shooting in Bintang Muda Basketball Club players in Kendal District.
- There is a contribution of push-up and pull-up

training together to the arm strength for shooting two point shooting in Bintang Muda Basketball Club players in Kendal District.

METHOD

According to Sugiyono, (2018), This research used a quantitative approach with an experimental method to find out how physical exercises contribute to basketball playing techniques, especially the ability to shoot two-point shots. The experimental method was chosen because it allows researchers to directly observe the effects of treatment on specific variables under controlled conditions. One experimental design used in this study was the pretest-posttest control group design. In this design, each group of subjects was tested before and after the treatment, without involving a control group (Emzir, 2015; Hadi, 2015). According to Sugiyono, (2018), the population of this research consisted of 20 members of the Bintang Muda Basketball Club in Kendal District who were participating in this research. All members were taken as the total sample. This research focused on the contribution of push-up and pull-up exercises in improving the strength of two-point shot throws.

Pull-ups involve strengthening the back muscles and biceps by lifting the body from a hanging position, whereas push-ups are exercises that involve strength in the chest and arms (Fanani, 2023). Both types of exercises were chosen because they are directly related to shooting techniques, which require pushing strength from the arms. To collect data, the development of both technical and non-technical elements of the players was observed directly during training and matches (Susanti & Margareta, 2019) (A, 2021). Additionally, pretests and posttests were used and arranged or adapted based on the Johnson and Ahper method. Participants were given a score of 1 for successful shots and 0 for missed shots (Nusa, 2024). Before being used, the instrument was tested to ensure valid and realistic measurement under actual conditions (Salmaa, 2021; Wahyuni, 2014; Sitoresmi, 2021).

In data analysis, the Pearson Product Moment correlation test was used to identify the relationship between push-up and pull-up training and the strength of two point shot. Additionally, multiple correlation tests were used to determine the combined contribution of both exercises simultaneously. The results were interpreted, processed, and analyzed using the SPSS program (Iqbal, 2020).

To measure the contribution of push-up

and pull-up exercises to the strength of two point shot at Bintang Muda Basketball Club in Kendal District, this research used the coefficient of determination with the following formula (Iqbal, 2020):

$$KD = r^2 \times 100\%$$

Explanation:

KD = Coefficient of Determination

r² = Multiple correlation coefficient.

RESULTS AND DISCUSSION

Based Pearson Correlation Parametric Test, it can be seen that the variable "Push-up and Pull-up" has a significance value (Sig.) = 0.057 > 0.05. The variable "Two-Point Shooting Strength" has a significance value (Sig.) = 0.173 > 0.05. Since both variables have Sig. values > 0.05, it can be concluded that both variables are normally distributed. Based on these results, the next analysis can be performed using the Pearson Correlation Parametric Test.

In relation to the results of the correlation test in this study show that the correlation coefficient (r) = 0.542, with a significance value (Sig.) = 0.014 < 0.05. A correlation coefficient of 0.542 falls into the moderate/fairly strong correlation category (range 0.40–0.59). Because the Sig. value < 0.05, the relationship between the variables in this study is statistically significant. Therefore, it can be understood that there is a fairly strong and significant relationship between Push Up and Pull Up exercises and the ability to shoot 2-point shots among young basketball players at the Bintang Muda Basketball Club in Kendal District.

The research conducted at the Bintang Muda Basketball Club in Kendal, Central Java, successfully demonstrated a real contribution from Push Up and Pull Up training to the improvement of 2-point shooting ability in players. Based on pre-test and post-test data analysis, there was a significant increase in 2-point shooting ability after players routinely underwent the physical training. Initially, most players' 2-point shooting strength was in the low category, but after the training program, some players showed improvements up to the moderate category. This condition supports the hypothesis that upper body strength training, such as Push Up and Pull Up, plays an important role in enhancing technical performance in basketball, especially in producing strong and accurate shots. This finding aligns with the principles of physical training that

emphasize upper body strength to support explosive movements during gameplay.

Physical exercises such as Push Ups and Pull Ups have been shown to have a major contribution in increasing body stability and strengthening the upper body muscles, especially the arm and shoulder muscles. This is in accordance with the results of a study by Rozaq & Priyanto, (2023), that exercise is an activity to improve sports skills. Physical exercises such as Push Up and Pull Up have been proven to greatly contribute to improving body stability while strengthening upper body muscles, particularly the arms and shoulders. The movements in these exercises present physical challenges through repeated muscle contractions and stretches, which over time increase strength and endurance. According to Perabunita & Meidiansa, (2020), Push Up and Pull Up exercises are highly effective methods for developing focused muscle strength, especially in muscle groups such as the chest, upper arms, and shoulders. In practice, these exercises do not only build muscle strength locally, but also train overall body coordination and control, which are essential in both physical activities and competitive sports.

The benefits of Push Up and Pull Up exercises do not stop at muscle strength alone, but also contribute directly to athletic performance, such as in basketball. Repetitive training of this type can stimulate muscle growth and strength needed to perform explosive movements such as shooting. The findings of this study show that an increase in upper arm strength through Push Up and Pull Up exercises significantly contributes to the improvement in 2-point shooting ability. In other words, consistent and regular exercise has a positive and significant impact on supporting the technical performance of basketball players, especially in terms of shooting strength and accuracy.

Shooting ability is an important part that is one of the basic techniques in playing basketball. This is as conveyed by Prasetyo, (2024) that in basic basketball techniques there are 3 types, namely: passing (feeding), shooting (shooting into the ring), and dribbling (driving). The existence of Push Up and Pull Up exercises consistently has been proven to contribute greatly to improving shooting abilities. The research results show that for players at the Bintang Muda Basketball Club, increased upper arm strength led to improved 2-point shooting ability after undergoing physical training that includes Push Up and Pull Up. This exercise improves upper arm strength, a vital part of the body that supports the force generated when taking a shot or executing a 2-point play in

basketball. This result is in line with the opinion of Pradina & Wahyudi, (2020), who stated that arm muscle strength greatly affects the shooting accuracy in basketball and has a large contribution to the success of 2-point shooting.

Research by (Fanani, 2023) also supports this finding, in which the results of his study showed that the ability to shoot becomes more progressive due to the consistency of push-up and pull-up training carried out by basketball players. Players from the Bintang Muda Basketball Club were aware of the increase in their arm muscle strength after doing push-up and pull-up exercises, especially in the arms and shoulders, where both muscles are very important for accurate shooting techniques for 2-point shots. Therefore, this training greatly contributes to the strength and movement stability when shooting in the direction of the ring.

Hence, it can be concluded that doing push-up and pull-up exercises consistently can improve the shooting accuracy and strength of 2-point shots. Push-up and pull-up exercises have a significant positive contribution to the strength of 2-point shooting among basketball players, especially those from the Bintang Muda Basketball Club. This is because increased arm muscle strength as a result of these exercises is correlated with both shooting accuracy and shot power. Therefore, to improve skills and shot accuracy, push-up and pull-up training should be included in a basketball player's training program so that it contributes significantly to the success of playing basketball.

CONCLUSION

The research results showed that players of the Bintang Muda Basketball Club in Kendal experienced an increase in 2-point shooting power as a result of physical exercises involving push-up and pull-up activities. This training increases the ability to strengthen the arm and shoulder muscles, both of which are very important in producing power and movement stability during shooting. The research data show that the push-up and pull-up variables had normally distributed data, so Pearson's parametric test was feasible. The correlation test result, with a coefficient of 0.542 and a significance level of 0.014, showed a fairly strong and significant relationship between push-up and pull-up training and 2-point shooting strength in Bintang Muda Basketball Club players. The results of the Correlation Test show a coefficient value of 0.542, where this score is included in the category of a fairly strong

relationship. With a significance value of 0.014 which is below the threshold of 0.05, the relationship between physical training and shooting results can be said to be statistically significant. This means that the increase in the intensity and quality of Push Up and Pull Up training is directly proportional to the increase in the strength of the players' 2 Point Shooting throws. Hence, it can be concluded that push-up and pull-up exercises contribute to the 2-point shooting strength of Bintang Muda Basketball Club players in Kendal District.

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