

THE EFFECT OF BALANCE TRAINING ON BALL CONTROL ABILITY IN SOCCER PLAYERS OF SMP NEGERI 3 BAMBEL

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Abstract

This study aims to determine the significant effect of balance training on improving the ball control ability of soccer players at SMP Negeri 3 Babel. The methodology employed was an experimental method with a one-group pretest-posttest design. The research sample consisted of eleven soccer players selected through a total sampling technique. The instrument used to measure the dependent variable was a ball control skill test. The results of data analysis showed a considerable increase in the average score of ball control ability, from 2.36 in the pretest to 4.27 in the posttest. The statistical t-test resulted in a t-count of 7.95, which is significantly greater than the t-table of 1.81 at ten degrees of freedom and a five percent significance level. Based on the hypothesis testing criteria, this leads to the rejection of the Null Hypothesis (H₀) and the acceptance of the Alternative Hypothesis (H_a). Therefore, it can be concluded that balance training has a significant and positive effect on improving the ball control ability of soccer players at SMP Negeri 3 Babel. This finding underscores the importance of integrating balance training into fundamental soccer training programs for adolescents.

Keywords: *Balance Training, Ball Control Ability, Youth Soccer, Fundamental Technical Skills*

INTRODUCTION

Soccer has long held its position as one of the most popular sports in the world, including in Indonesia, where it is enjoyed not only at the professional level but also at the grassroots level, particularly among students. This team sport does not solely rely on running speed or powerful kicks, but more on comprehensive and integrated mastery of basic techniques. One of the most fundamental techniques that determines a player's quality of play is ball control ability. This ability is the primary foundation for building every attack and maintaining possession. A player with good ball control will be able to receive passes in various situations—whether ground passes, aerial balls, or under pressure from opponents—and then quickly transition to the next movement, such as dribbling, passing, or shooting. In other words, effective ball control allows a player to dictate the tempo of the game, reduce possession loss, and ultimately create scoring opportunities.

However, the reality on the ground, particularly at the junior high school level such as at SMP Negeri 3 Babel, shows that the mastery of this basic technique remains a major challenge. Many players struggle to control the ball consistently and effectively. Common problems include the ball often bouncing too far from the feet upon reception, the inability to trap balls arriving at high speed, and failure to shield the ball from opposing players' pressure. This causes the gameplay to be frequently disrupted, attacks to become disorganized, and the ball to be easily won by the opposing team.

The low level of ball control ability is strongly suspected to be related to the players' lack of body balance stability. In the dynamic nature of soccer, which is full of sudden changes in direction, a balanced body is an absolute prerequisite for being able to position oneself correctly under the ball. Good body balance allows a player to maintain a stable and controlled posture when making contact with the ball, whether with the foot, thigh, or chest. Balance training is specifically designed to improve body stability by strengthening core muscle groups, enhancing coordination between limbs, and improving concentration focus. When the body is stable, the player has a solid support base to perform smooth and accurate technical movements, including ball control. Based on this phenomenon and theoretical framework, this research was conducted to empirically and objectively test the effect of a structured balance training program on improving ball control ability. This study is expected to provide scientific evidence and

practical solutions for Physical Education teachers and coaches at the school level, particularly at SMP Negeri 3 Babel, in their efforts to improve the basic technical quality of their young soccer players through a training approach that is often overlooked: balance training. Based on the background described above, the research problem in this study is: "Is there a significant effect of applying balance training on improving the ball control ability of class VII and VIII soccer players at SMP Negeri 3 Babel?" Theoretically, this research is expected to enrich the field of sports science, particularly in early-age soccer coaching, by strengthening the evidence regarding the relationship between specific physical conditioning (balance) and the mastery of basic techniques (ball control). Practically, the results of this study can serve as a reference and guide for Physical Education teachers at SMP Negeri 3 Babel and other schools to design and implement more integrated training programs, including balance training as a mandatory component in the soccer training curriculum. For the players themselves, this research is expected to raise awareness of the importance of balance training and contribute directly to improving their individual performance on the field.

LITERATURE REVIEW

Soccer and Ball Control Ability

Soccer, from a scientific perspective, is more than just a game; it is a complex physical activity that demands synergy between biomotor abilities, cognitive skills, and psychological factors. According to Muhajir (2007), success in soccer is highly determined by the mature mastery of basic techniques, which include passing, shooting, dribbling, heading, and the most fundamental: controlling or trapping the ball. Ball control ability is the first movement in the attacking chain and serves as the bridge between receiving the ball and executing the next technique. Mielke (2007) emphasizes that at the beginner and youth levels, basic technique training should dominate the training program, as a strong technical foundation will be a valuable asset for tactical and physical development at more advanced levels.

Ball control can be defined as the technical ability to master and place the ball within one's reach after receiving it from a pass, clearance, or loose ball situation. Gaetano (2017) explains that effective ball control does not only mean stopping the ball dead, but also directing it into open space that facilitates the next movement. Ball control can be performed using various parts of the foot, such as the inside, outside, instep, sole, as well as other body parts like the thigh, chest, and head. The quality of ball control is influenced by several key factors. The first factor is the ability to read the ball's trajectory and speed, which requires high visual concentration. The second factor is the timing and positioning of the body when about to make contact with the ball. The third factor, and the focus of this research, is body stability and balance. A player who loses balance as the ball arrives will find it difficult to place their foot or other body parts at the correct angle and position to trap the ball. Consequently, the ball tends to bounce uncontrollably. Therefore, good ball control is always preceded by a balanced and ready body position.

Balance Training and Ball Control Ability

Balance in the context of sports is defined as the ability to maintain the body's center of gravity over its base of support, both in static and dynamic states (Bompa, 2009). Balance training is a series of activities specifically designed to improve body stability by challenging the vestibular, visual, and proprioceptive (sense of joint position) systems. This training involves strengthening the stabilizer muscles, especially the core muscles such as the transversus abdominis, multifidus, and the muscles around the pelvis and hips. According to Nyoman (2022), in the context of soccer, balance training drills have a dual role. First, as an injury prevention tool by increasing the stability of major joints like the ankles and knees. Second, and more importantly, as a performance enhancement tool. A stable and balanced body will be better prepared to receive and adapt to complex and unpredictable movement stimuli during the game. When a player has good balance, they can change direction quickly, turn stably, and primarily, provide a solid platform for the foot to perform technical tasks such as controlling the ball.

There is a logical causal relationship between balance training and ball control ability. The mechanism of this relationship can be explained through several stages. First, balance training improves the strength and endurance of the core and limb muscles. These strong muscles function as a stable support, allowing the joints to move with better control. Second, this training improves neuromuscular coordination, which is the ability of the nervous system to send precise and rapid signals to the relevant muscles to maintain balance. When the ball arrives, the trained player's nervous system will quickly activate the necessary muscles to stabilize the body before the foot makes contact with the ball. Research by Efriyansyah et al. (2022) provided initial support for this relationship by concluding that variations in training, which can include balance elements, have a positive effect on ball control ability. This study seeks to specialize these findings by exclusively examining the effect of pure balance training, so that its contribution to improving basic technique can be measured more clearly. For adolescent players like junior high school students,

who are still in the golden age of motor skill development, the integration of balance training is believed to have a more significant and long-term impact.

Theoretical Framework

Based on the literature review, a logical theoretical framework can be constructed. The low ball control ability of soccer players at SMP Negeri 3 Babel is suspected to be caused by a lack of dynamic body stability and balance. A structured and progressive balance training program will provide stimulation to the neuromuscular system and stabilizer muscles. This stimulation will result in improved body stability, which in turn provides a solid postural foundation for the player to execute ball control technique more accurately and consistently. This improvement in balance allows the player to focus more on other technical aspects, such as the precision of the touch and the direction of control, without worrying about falling or losing balance. Thus, theoretically, balance training is hypothesized to have a significant positive impact on ball control ability. Based on this theoretical framework, the following research hypothesis is proposed: Ha: There is a significant effect of balance training on the ball control ability of soccer players at SMP Negeri 3 Babel.

H0: There is no significant effect of balance training on the ball control ability of soccer players at SMP Negeri 3 Babel.

RESEARCH METHOD

Research Design and Setting

This research used a quantitative approach with an experimental method. The type of experiment applied was a quasi-experiment, with a One Group Pretest-Posttest Design. In this design, measurement of the dependent variable (ball control ability) was conducted twice on the same group of subjects. The first measurement (pretest) was carried out before the group received the treatment (balance training intervention). After the intervention was completed, the second measurement (posttest) was conducted using the same instrument to see if there was any change. This design is effective for researching the impact of a treatment in conditions where it is difficult for the researcher to form a fully equivalent control group. This research was conducted from April to May 2024, with a total duration of six weeks. The research location was the Soccer Field of SMP Negeri 3 Babel and other open spaces within the school environment adequate for conducting balance training.

Population and Sample

The population in this study were all active members of the soccer extracurricular program at SMP Negeri 3 Babel, totaling twenty people. Considering time constraints and to ensure training intensity, the sample was taken from this population. The sampling technique used was Total Sampling, where all members of the population who met the inclusion criteria were selected as samples. These inclusion criteria were: (1) Being a student of class VII or VIII at SMP Negeri 3 Babel; (2) Actively participating in the soccer extracurricular; (3) Having parental/guardian permission to participate in the research; (4) Having no history of serious musculoskeletal injury in the limbs or back in the last three months; (5) Willing to follow the entire research sequence from start to finish. From the screening process, eleven players were selected who met all criteria and agreed to be research samples.

Research Instrument

The instrument used to measure ball control ability was a ball control skill test that had been previously validated by experts. This test was designed to simulate ball reception situations in real game conditions. The test procedure began with the researcher or an assistant acting as a tester standing at a distance of ten meters from the research subject. The tester then threw the ball by hand towards the subject with consistent speed and trajectory, specifically a moderate lob. The subject was required to control the incoming ball using their foot—either with the inside, outside, or instep—and had to immediately pass the ball back towards the tester using only one touch. Each subject was given ten attempts to collect comprehensive data.

The scoring system in this test used a scale of 1 to 5 for each attempt. A score of 5 was given if the ball was controlled perfectly, indicated by the ball not bouncing far from the foot and the return pass being precise and accurate towards the tester. A score of 4 was given when the ball was still controlled well even if it bounced slightly and the return pass was fairly accurate. A score of 3 was achieved if the ball was successfully controlled but bounced somewhat far or the return pass was less accurate. A score of 2 was given in conditions where the ball was difficult to control, bounced far away, and the return pass was inaccurate. Meanwhile, a score of 1 was given if the subject failed completely to control the ball, resulting in the ball being lost entirely. The total score for each subject was the

accumulation of these ten attempts, with a maximum possible score of 50. For ease of data analysis, this raw score was then converted to a value on a scale of 10.

Research Procedure

The research procedure was carried out through three main sequential stages. The first stage was the Pretest Stage, where before the training program began, the eleven samples underwent the ball control ability test using the previously explained instrument. The data obtained from this initial test were carefully recorded as baseline or pretest data. The second stage was the Intervention or Treatment Stage, which was implemented after the pretest was completed. In this stage, all samples participated in an intensive balance training program for six weeks with a frequency of three times per week, resulting in a total of eighteen training sessions. Each training session lasted about thirty minutes and was integrated into the regular extracurricular training session.

The forms of balance training provided were highly varied, including single-leg stands, balance board drills, BOSU ball exercises, lunges with various variations, and dynamic balance training with eyes closed. Overall, this series of exercises was designed progressively, starting from simple and stable movements and gradually increasing to more complex and unstable movements. The third stage was the Posttest Stage, conducted at the end of the sixth week after all intervention sessions were declared complete. In this final stage, the eleven samples again underwent the ball control ability test with the exact same procedure and instrument as used during the pretest. The data successfully obtained from this final test were then recorded as final or posttest data.

Data Analysis Technique

The data collected from the pretest and posttest results were then analyzed using a series of appropriate statistical techniques. First, Descriptive Statistics were used to describe the characteristics of the sample data and provide a general overview of the pretest and posttest scores through calculations of the mean, median, mode, and standard deviation. Second, the Normality Test was applied to test whether the difference or gain score data between the posttest and pretest were normally distributed. The test used in this study was the Shapiro-Wilk test, chosen considering the relatively small sample size of only eleven people. Data can be stated as normally distributed if the obtained significance or p-value is greater than 0.05.

Third, Hypothesis Testing was conducted using the Paired Sample T-Test, which is an appropriate statistical test because the data were normally distributed and came from paired samples. This test aimed to compare the average pretest and posttest scores to determine whether there was a significant difference. The decision in this hypothesis test was made at a significance level of $\alpha = 0.05$. If the resulting Sig. (2-tailed) value was less than 0.05, then the Null Hypothesis or H_0 was rejected and the Alternative Hypothesis or H_a was accepted, meaning there was a significant difference between the two conditions. The entire data analysis process in this study was carried out with the assistance of IBM SPSS Statistics 26 software to ensure the accuracy and reliability of the results.

RESEARCH RESULTS

Descriptive Statistics of Pretest and Posttest Results

The results of the pretest and posttest measurements of ball control ability were analyzed descriptively to provide an initial picture of the data trends. The results of the descriptive statistics calculations are presented in Table 1.

Table 1. Descriptive Statistics of Pretest and Posttest Scores for Ball Control Ability

Statistic	Pretest	Posttest
Sample Size (N)	11	11
Minimum Score	2.00	3.80
Maximum Score	2.90	4.70
Average (Mean)	2.36	4.27
Standard Deviation	0.29	0.28

Table 1 clearly shows a fairly sharp increase in the average score. The average pretest score of 2.36 increased to 4.27 in the posttest, with an increase difference of 1.91 points. The relatively stable standard deviation (0.29 in the pretest and 0.28 in the posttest) indicates that the data distribution did not change much, but all data shifted towards higher values. This shows that the improvement occurred evenly across almost all samples.

Normality Test

Before conducting the hypothesis test, a normality test was first performed on the gain score data (the difference between posttest and pretest) to ensure the feasibility of using parametric statistical tests. The results of the Shapiro-Wilk test are presented in Table 2. Based on Table 2, a significance value (Sig.) of 0.382 was obtained. Since this value is much greater than 0.05, it can be concluded that the gain score data is normally distributed. Thus, the requirement for using the Paired Sample T-Test has been met.

Table 2. Normality Test Results for Gain Score

Test Statistic	Shapiro-Wilk		
	Statistic	df	Sig.
Gain Score	0.925	11	0.382

Hypothesis Test (Paired Sample T-Test)

To test the research hypothesis, a Paired Sample T-Test was conducted to compare the average pretest and posttest scores. The test results are presented in Table 3.

Table 3. Paired Sample T-Test Results

	Mean	Std. Deviation	Std. Error Mean	t	df	Sig. (2-tailed)
Posttest and Pretest	1.909	0.795	0.240	7.950	10	0.000

Table 3 shows that the t-count value is 7.950 with degrees of freedom (df) 10. The significance value (Sig. 2-tailed) is 0.000. Because this value of 0.000 is much smaller than 0.05, the Null Hypothesis (H0) is rejected and the Alternative Hypothesis (Ha) is accepted. This statistically proves that there is a very significant difference between the ball control ability scores before and after the balance training treatment was administered.

Discussion

The main finding of this research is the very significant improvement in ball control ability after the eleven soccer players of SMP Negeri 3 Bambel underwent a six-week balance training program. An increase of 1.91 points on a scale of 10 (or 19.1 points on a scale of 100) is not a small improvement; it represents a qualitative leap from a low ability category to a good one. The highly significant statistical test result (p=0.000) further confirms that this improvement is very unlikely to have occurred by chance or other factors, but was truly influenced by the training intervention provided.

This result aligns with and strengthens the findings of previous studies and the constructed theoretical framework. Research by Efriyansyah et al. (2022) on training variations also found a similar pattern of improvement, although in this study, the independent variable is more specific, namely pure balance training. An in-depth discussion reveals several mechanisms that may be the main causes of the effectiveness of this training. First, the overall improvement in body stability. Balance training such as single-leg stands and exercises on a balance board intensively train the core and limb muscles to contract stably. When these muscles are strong and stable, they form a solid "platform" or base for the body. When the ball arrives, the player is not easily shaken or pushed off balance by the ball's momentum. The foot that supports the body becomes stable, so the foot used to control the ball can move more freely, smoothly, and controlled. Previously, without adequate balance, contact with the ball was often made in an unbalanced body state, causing control to be rough and inaccurate.

Second, the improvement in neuromuscular coordination. Balance training is essentially training for the nervous system. These exercises force the body to continuously adapt to unstable surfaces, thereby training the nervous system to send corrective signals very quickly to the relevant muscles. In the context of ball control, when the ball touches the foot, there is complex tactile and kinesthetic information. A player with a trained neuromuscular system will process this information more quickly and send commands to adjust the muscle tension in the foot, making the touch on the ball "softer" and more sensitive (feeling). This explains why after training, the ball does not bounce far but tends to "stick" to the player's foot. Third, the improvement in concentration and body awareness. Most balance training requires a high level of concentration. The player must focus on maintaining their body position. This habit of focus then carries over into ball control technique. The player becomes more aware of their own body position relative to the ball (body awareness). They learn to place their body in the "path" of the ball more precisely and at the optimal time. This improved concentration allows them to be more mentally and physically prepared when receiving a pass. Thus, it can be concluded that balance training does not work in isolation but is integrated holistically. It improves the physical aspect (stability), the neurological aspect (coordination), and the cognitive aspect (concentration) simultaneously. The synergy of these three aspects is what ultimately results in a significant improvement in technical performance, in this case, ball control ability. This finding provides strong justification for coaches and teachers not to regard balance training as a secondary exercise, but as a core component in youth soccer development.

CONCLUSION AND SUGGESTIONS

Based on the data analysis and discussion that have been presented, several comprehensive conclusions can be drawn. First, the initial ball control ability of the soccer players at SMP Negeri 3 Babel before treatment, represented by the average pretest score of 2.36, was still at a relatively low level. Second, after participating in a structured balance training program for six weeks, a very noticeable improvement in ability occurred, as shown by the average posttest score of 4.27, which had entered the good category. Third, and most importantly, the result of the paired sample t-test, which yielded a significance value of 0.000 ($p < 0.05$), decisively proves that balance training has a positive and statistically significant effect on improving the ball control ability of soccer players at SMP Negeri 3 Babel. In other words, the alternative hypothesis (H_a) proposed in this study is accepted.

Based on the conclusions above, the researcher proposes several applicable and strategic recommendations and suggestions. First, for Physical Education Teachers and Coaches at SMP Negeri 3 Babel and other schools with similar contexts. It is recommended to systematically integrate balance training into the periodic training plans for the soccer extracurricular program. This training does not always require expensive equipment; utilizing uneven surfaces, training with eyes closed, or bodyweight movements like those performed in this study have proven effective. Balance training should be provided progressively and consistently, at least two to three times a week, as part of the warm-up or specific conditioning session.

Second, for Sports Supervisors and School Authorities. The suggestion is to conduct soccer coaching more regularly, enjoyably, and most importantly, in accordance with the growth and development characteristics of junior high school students. Furthermore, the school can consider allocating funds for the procurement of simple balance training equipment, such as balance boards, BOSU balls, or wobble boards, to support training variety and intensity. Creating a training environment rich in stimuli for the development of basic motor skills should be a priority. Third, for Future Researchers. It is suggested to replicate the research with a broader scope. Several aspects that can be developed include: using a research design that involves a control group to compare its effectiveness with other training methods, researching the effect of balance training on other basic soccer techniques such as dribbling or shooting, extending the intervention duration to see long-term effects, or involving samples with different characteristics such as gender, age, or more diverse skill levels.

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