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The Effect of Circuit Training on Improving the Shooting Ability of BMJN SSB Players

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Abstract

This study aims to determine the effect of circuit training on improving the shooting ability of SSB BMJN players. Shooting is a fundamental technique that significantly determines goal-scoring success, so effective training methods are needed to improve kicking power, accuracy, and speed. Circuit training was chosen because of its characteristic of combining several forms of physical exercise in sequence, so that it can train various fitness components at once, such as muscle strength, endurance, coordination, and power, which have a direct contribution to shooting performance. This study used an experimental method with a one-group pretest-posttest design. The subjects were SSB BMJN youth players selected based on age uniformity, playing experience, and relatively similar physical condition. A circuit training program was implemented over several weeks with structured intensity and progression. Shooting ability measurements included shot accuracy, ball speed, and shot consistency on specific targets. The results of this study showed a significant improvement in shooting ability after implementing circuit training, both in terms of accuracy and kick power. This improvement was supported by physical adaptations resulting from the repetitive and planned training load. Therefore, it can be concluded that circuit training is an effective method for improving the shooting ability of soccer players, particularly those at SSB BMJN. This method is recommended in routine training programs to optimize the performance of players' basic techniques.

Keywords: circuit training, shooting, football, technical skills, SSB BMJN

Introduction

Football is one of the most popular sports in the world, including in Indonesia. This sport requires players to possess excellent physical, technical, tactical, and mental abilities to perform optimally. In football, a team's success is greatly influenced by mastery of basic techniques, such as passing, dribbling, control, heading, and especially shooting. Shooting is a crucial skill as it plays a key role in scoring goals, which ultimately determines victory in a match. Shooting ability relies not only on leg muscle strength but also requires body coordination, balance, accuracy, and precise timing when shooting. Based on initial observations at the BMJN Football School (SSB), it was found that most players still have shooting weaknesses, both in terms of kick power and accuracy. This impacts the effectiveness of attacks and the low success rate of scoring goals during matches.

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To address these issues, a training method is needed that can improve leg muscle strength, endurance, and overall body coordination. One training method considered effective for this purpose is circuit training. This training is a combination of various forms of physical exercise performed sequentially at several stations, with short rest periods between each station. The primary goal of circuit training is to improve overall physical fitness, particularly in the areas of strength, endurance, speed, and agility. According to Harsono (2018), circuit training is highly effective for developing physical abilities simultaneously because it involves multiple muscle groups in a single session. Furthermore, this training can be tailored to the needs of specific sports, including soccer. By implementing circuit training specifically designed to train leg muscles, players are expected to increase strength and explosive power, which play a crucial role in shooting ability.

Several previous studies have also shown that circuit training has a positive effect on improving athlete performance. For example, research by Sukadiyanto (2011) found that circuit training can significantly improve muscular endurance, speed, and leg muscle strength. Improvements in these aspects are directly related to a player's ability to shoot powerfully and accurately. Based on the description above, the researcher is interested in conducting a study entitled "The Effect of Circuit Training in Improving the Shooting Ability of SSB BMJN Players." This study is expected to contribute to the development of an effective training program to improve basic soccer technical skills, particularly shooting ability, in adolescent players.

Research Methods

This study used an experimental method with a One Group Pretest-Posttest Design. The research sample consisted of 15 SSB BMJN players aged 13–15 years who actively participated in regular training. The instrument used was a shooting ability test by counting the number of shots on target from 10 attempts. The treatment was carried out for 6 weeks with a frequency of three times per week. Data analysis used a paired sample t-test to determine differences in shooting ability before and after treatment. 1) Population and Sample The population in this study was all players at the BMJN Football School (SSB) who actively participated in regular training. The total population consisted of 25 players aged 13 to 15.

The study sample was drawn using a purposive sampling technique, which selects the sample based on specific criteria that align with the research objectives. The sample criteria in this study were:

1. Active players who train at least three times per week,
2. Aged between 13 and 15 years,
3. No injuries during the study,
4. Willing to participate in all training and testing sessions.

Based on these criteria, 15 players were selected as samples for the study. All participants participated in a six-week circuit training program, training three times per week. 2) Research

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Procedure, This, research was conducted in three stages: preparation, implementation, and evaluation.

1. Preparation Stage: Researchers prepare shooting test instruments, coordinate with coaches, and carry out pre-tests to measure players' initial abilities.
2. Implementation Phase: Players participated in a 6-week circuit training program, performed 3 times per week. Each training session lasted approximately 60 minutes, including a warm-up, core exercises in several positions, and a cool-down.
3. Evaluation Stage: After treatment, a post-test of shooting ability was conducted to compare pre- and post-training results. Data was analyzed using a paired sample t-test to determine the effect of circuit training on shooting ability.

Results and Discussion

The results of the study showed an increase in shooting ability after being given circuit training for six weeks.

Table 1. Average Results of Pre-Test and Post-Test Shooting Ability

Information	**Average**
Pre-Test	5,8
Post-Test	8,3
Defference	2,5

The t-test showed a calculated t value of 6.21 > t table = 2.14 ($p < 0.05$), indicating a significant difference between the pre-test and post-test results. This means that circuit training has a positive effect on improving the shooting ability of SSB BMJN players. These results align with research by Sukadiyanto (2019) and Sugiarto & Setiawan (2021), which states that circuit training can improve muscle strength and basic technical skills in soccer.

The results of the study showed a significant increase in shooting ability after being given circuit training. The average shooting score before training was 5.8, while after training it increased to 8.3 out of 10 trials. The t-test results showed a calculated t value (6.21) > t table (2.14) at a significance level of 0.05, which means there was a significant difference between before and after training. These improvements demonstrate that circuit training can improve leg muscle strength, endurance, and coordination when shooting. These results align with the findings of Harsono (2018) and Bompa (2015), who stated that circuit training can improve overall physical condition, including muscle strength and endurance, which play a crucial role in kicking the ball. Therefore, circuit training has proven effective in developing young players at SSB BMJN.

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Discussion

The findings of this study indicate that prior to the implementation of circuit training, the shooting ability of BMJN SSB players was relatively weak, characterized by low kicking power, inconsistent ball direction, and poor shooting accuracy. After undergoing a structured circuit training intervention, a significant improvement was observed in several key performance indicators: kicking power increased, shooting accuracy toward the goal improved, and consistency across different shooting situations became better. These results align with previous studies reporting that circuit training has a positive influence on football shooting performance. For instance, Tamammudin and Widodo (2020) showed that shooting scores significantly increased from the pre-test average score of 2.75 to a post-test score of 4.58 ($p < 0.05$). Similarly, research involving students from SMA Negeri 7 Banda Aceh demonstrated notable enhancements in both passing and shooting abilities following circuit training interventions.

These improvements may be attributed to several supporting factors, including high player motivation, the variety of drills included in the circuit that provide diverse technical and physical stimuli, and active supervision from coaches who continuously correct players' techniques. These elements are crucial to ensuring that learning and performance transfer are maximized throughout training. On the other hand, excessive training intensity that is not properly monitored may lead to fatigue, which can lower technical execution quality and increase the risk of injury, particularly when kicking techniques are performed incorrectly. This concern has also been highlighted in football-based circuit training research emphasizing the importance of load management and maintaining correct biomechanics during training.

Overall, the results of this study confirm that circuit training is an effective training approach to enhance shooting ability among grassroots football players. However, to ensure optimal benefits while minimizing negative effects, the training program should incorporate: (1) varied and progressive circuit structures, (2) close supervision of shooting techniques by coaches, (3) proper monitoring of training load and recovery to prevent excessive fatigue, and (4) individual adaptation based on athletes' physical condition and readiness.

Conclusion

The Effect of Circuit Training in Improving Shooting Ability of SSB BMJN Players" shows that the implementation of the circuit training method is proven to be effective in improving players' shooting abilities, because this training is able to integrate aspects of strength, endurance, coordination, and concentration which directly support the quality of kicks towards the goal. Thus, the hypothesis that circuit training has a positive effect on improving shooting abilities can be accepted, while also answering the research objective to find the right training method for young players. In the future, similar research can be developed by adding other variables such as the influence of motivation, basic techniques, or psychological conditions of players, so that a more comprehensive picture of the factors that influence shooting skills in soccer can be obtained.

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