

Implementation of Circuit Training and Interval Training Exercises on Improving Football Dribbling Skills in Seventh Grade Junior High School Students

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Article History: Received on 19 July 2024, Revised on 5 September 2024,
Published on 30 September 2024

Abstract: Football is a sport that requires a combination of good physical, technical, and tactical skills. One of the important technical skills in football is dribbling, which is the ability to control and manipulate the ball with the feet. Improving dribbling skills is a major focus in physical training for junior high school students, because it not only improves individual performance but also the overall contribution of the team in the game. This study explored the effects of two different training methods, namely circuit training and interval training, on the dribbling skills of junior high school students. Good dribbling skills are a crucial aspect in the technical development of football players at their developmental stage. Using an experimental approach, students were randomly selected to participate in training twice a week for 10 weeks. Dribbling ability evaluations were conducted before and after the training period to compare the effects of the two training methods. These findings are expected to provide deeper insight into the effectiveness of technical training in improving junior high school students' dribbling skills in an educational setting.

Keywords: Circuit Training, Dribbling, Interval Training

A. Introduction

Football is a sport that requires a combination of high physical, technical, and tactical skills. Furthermore, Football is a ball game played by two teams, each consisting of five players. The goal is to get the ball into the opponent's goal, by manipulating the ball with the feet. In addition to the five main players, each team is also allowed to have reserve players. Unlike other indoor football games, the football field is limited by lines, not a net or boards. While it is acknowledged as a valuable tool for developing football skills in various countries, the initiatives aimed at enhancing the technical and tactical abilities of young football players through football remain relatively limited. Despite the clear advantages that football training offers, there is a significant gap in the widespread and concentrated efforts needed to thoroughly incorporate football into youth development programs. This lack of focused integration hinders the optimization of training benefits for young players.

According to Mubarok et al. (2019), football is a sport that uses a ball that is generally made of leather and is played by two teams, each consisting of 11 (eleven) people. Football is often played by the public for fitness, recreation and achievement, so it is not surprising why football is a very popular sport and is loved by all levels of society. There are several techniques that must be mastered by each player in order to play football well as stated by Sudjarwo (2015) in general the basic skills of the football game consist of:

1. Techniques without the ball, namely all movements without the ball consisting of:
 - a. Sprinting and changing direction;
 - b. Jumping and jumping;
 - c. Feint movements without the ball, namely feint movements without the body;
 - d. Special movements without the body; and
 - e. Special movements for the goalkeeper.
2. Techniques with the ball. That is all movements without the ball consist of:
 - a. Recognizing the ball;
 - b. Kicking the ball;
 - c. Receiving the ball;
 - d. Dribbling the ball;
 - e. Heading;
 - f. Throwing the ball;
 - g. Feint techniques with the ball;
 - h. Seizing or grabbing the ball (Trackling); and
 - i. Special goalkeeper techniques.

In the game of football kicking the ball passing has the following objectives: "Passing the ball to a friend, passing the ball to an empty area, passing the ball through between opponents, kicking the ball to score a goal into the opponent's goal, and kicking the ball to use one's own playing area". One important technical aspect in football is dribbling, dribbling is a key technical component in football, involving the skillful control and maneuvering of the ball while navigating past opponents (Barbon Junior et al., 2022). This ability is essential for effective ball handling, creating offensive opportunities, and maintaining possession during play. Football is a global game very different from football in terms of game rules and tactical actions but although it is known to be an instrument of football development in some countries. The efforts to improve technical and tactical behavior of young football players are limited, which is the ability to control and manipulate the ball with the feet in different game situations (Low et al., 2020). Effective dribbling skills not only enhance a player's personal capability to challenge and overcome opponents but also significantly boost their overall impact on the team by enabling better ball control and creating more strategic opportunities for collective play. Strong

dribbling skills not only improve a player's ability to confront and surpass opponents but also greatly elevate their overall contribution to the team (Wani et al., 2024). Enhanced dribbling leads to superior ball control and generates more strategic opportunities for teamwork and offensive plays.

At the junior high school level, especially for seventh grade students, the development of basic football techniques becomes very important. This is the time when students begin to build their technical foundations, including in terms of dribbling. Structured and effective physical training can play a major role in improving and enhancing students' dribbling abilities at this age (Jafar et al., 2023). Dribbling ability in football is an essential technical skill to control the ball with the feet effectively when under pressure from opponents (Coutinho et al., 2023). According to Wilson et al. (2020), dribbling performance is a feature of all elite players, regardless of their game position. Dribbling not only allows players to avoid opponent guards, but also to create meaningful attacking opportunities in the game. During the developmental phase of junior high school students, cultivating strong dribbling skills is crucial for establishing a solid technical foundation in the sport (Subhan & Agus Widodo Suropto, 2024). Mastery of dribbling at this stage not only enhances their individual performance but also sets the groundwork for advanced techniques and strategies as they progress in their athletic development.

Circuit Training and Interval Training are two widely recognized and extensively validated training techniques that have shown significant success in improving various aspects of physical fitness and technical proficiency (You et al., 2021). Circuit Training involves performing a series of exercises in succession with minimal rest, targeting different muscle groups and aspects of fitness, while Interval Training alternates between periods of high-intensity exercise and lower-intensity recovery, which enhances both endurance and overall performance. Circuit Training consists of executing a sequence of various exercises consecutively with minimal breaks in between. This approach targets multiple muscle groups and addresses different facets of physical fitness, such as strength, endurance, and flexibility.

On the other hand, interval training alternates between short bursts of intense exercise and periods of lower-intensity recovery or rest. This pattern not only improves cardiovascular endurance but also boosts overall athletic performance by pushing the body's limits during high-intensity intervals while allowing for recovery to sustain effectiveness throughout the workout. These methods are effective in developing strength, endurance, agility, and specific technical skills relevant to various sports and activities (Kabdwal et al., 2023; Mallesh & T.N, 2018). Circuit Training involves performing a series of exercises targeting various fitness components, such as strength, speed, endurance, and coordination, in a sequence with minimal rest. This method provides a comprehensive workout that can

improve overall physical conditioning, which is crucial for Football skills like dribbling.

Circuit training consists of completing a sequence of exercises that address different aspects of fitness, including strength, speed, endurance, and coordination. Participants perform each exercise in succession with little to no rest between them. This approach ensures a comprehensive workout by engaging various muscle groups and fitness components in one continuous session. According to Feito et al. (2018), interval training is characterized by variations between work and training. This approach is particularly effective for boosting cardiovascular fitness, speed, and stamina, all of which are essential for dynamic and sustained dribbling performance. However, Schmitz et al. (2018) explains that interval training is a training system that is alternated with intervals in the form of rest periods. Together, these training methods offer complementary benefits: circuit training builds general physical fitness and coordination, while interval training enhances endurance and speed. Employing both approaches can create a comprehensive training program that enhances dribbling skills in football, offering a balanced regimen that addresses various aspects of skill development (Shiraz et al., 2024).

This study seeks to examine how two different training methods affect the improvement of dribbling skills among junior high school students. Understanding the impact of these methods is crucial for gaining insights into their effectiveness in enhancing students' technical abilities within an educational environment. The findings from this research are expected to offer valuable information that can inform the creation of more effective training programs designed to advance dribbling skills in junior high school students. Comprehending the effects of these methods is essential for gaining valuable insights into how effectively they enhance students' technical skills within an educational setting. This understanding will help assess how well these training approaches contribute to skill development in a school environment. This will help in developing optimal strategies for skill enhancement in educational settings.

Research Objectives

This study aims to evaluate and analyze the impact of implementing circuit training and interval training exercises on improving dribbling skills in grade 7 junior high school students in the context of football. Specifically, the objectives of this study include:

1. Measuring Improvement in Dribbling Ability: Observing and recording changes in students' dribbling abilities before and after participating in Circuit Training and Interval Training training sessions.
2. Assess the Efficacy of Training Approaches: Evaluate and compare how well Circuit Training and Interval Training improve dribbling skills among

Seventh grade junior high school students. This analysis aims to determine which training method is more effective in enhancing their dribbling abilities.

3. Provide a Basis for Developing Training Programs: Provide empirical data that can be used to design and optimize appropriate physical training programs to improve technical skills in dribbling at the junior high school level.

Thus, the main objectives of this study are to provide a deeper understanding of how certain exercises can effectively improve dribbling skills in Seventh grade junior high school students, as well as provide an empirical basis for the development of better training methods in the future?

B. Methods

Research Design

This study uses an experimental approach with a randomized control group design. This study utilizes an experimental framework that incorporates a randomized control group design, allowing for a systematic comparison between different interventions and a control group to assess their effects on the outcomes of interest. This research will be randomly choose Junior high school students and divided into two groups: an experimental group undergoing circuit training and a control group undergoing interval training. According to Kolb & Kolb (2018) the experimental approach is a learning approach that provides direct learning experiences and involves activities in students. The experimental method is a research method used to find the effect of certain treatments on others under controlled conditions.

Participants

This study used random sampling. According to Arieska & Herdiani (2018), simple random sampling or commonly abbreviated as random sampling is a method of sampling where each member of the population is given the same opportunity to be selected as a sample. Simple random sampling technique is one of the simple and widely used sampling techniques. Respondents are selected using random numbers, with the quantity of respondents determined by the desired sample size. The parameter estimates for these samples are calculated, including both the mean and variance, which vary depending on the sample size. This approach ensures that the estimates reflect different sample sizes and their respective distributions. The study involved junior high school students from various schools within a specified region. To qualify for participation, students needed to be actively involved in sports, with a focus on football, and demonstrate a range of dribbling skills. This diverse skill set among participants was crucial for obtaining a comprehensive analysis of different dribbling abilities.

Intervention Setting

Circuit Training Group

Students in this group will participate in circuit training twice a week over a 10-week period. Each session will include a sequence of stations meticulously crafted to enhance dribbling techniques. Participants will rotate through these stations with short rest periods in between, designed to help sustain focus and maintain high levels of intensity throughout the training.

Interval Training Group

Students in this group will engage in interval training twice a week for duration of 10 weeks. Each session will include alternating phases of high-intensity drills focused on boosting dribbling speed, followed by active rest intervals. These recovery periods are specifically designed to aid in recuperation and help sustain the quality of performance throughout the training.

Measurement Instrument

Students' dribbling skills will be assessed through a validated dribbling test administered both before and after the training period. This test will include a range of dribbling scenarios designed to replicate real game situations, ensuring that the evaluation accurately reflects their practical abilities on the field. A test is an instrument or tool used to collect information in the form of knowledge or skills of a person. Meanwhile, according to Arikunto (2019), a test is a series of questions or exercises and other tools used to measure skills, knowledge, intelligence, abilities or talents possessed by individuals or groups.

Data Collection

Baseline data on dribbling ability will be gathered prior to the commencement of the training program, and subsequent measurements will be taken following a 10-week period of training. This approach will allow for a comprehensive comparison of dribbling skills before and after the intervention. Measurements are performed using objective methods and are closely monitored to guarantee accuracy and reliability of the results. This supervision ensures that the data collected is consistent and valid, adhering to strict standards throughout the process.

Data Analysis

Data analysis is a series of activities of reviewing, grouping, systematizing, interpreting and verifying data so that a phenomenon has social, academic and

scientific value. The collected data will be analyzed using descriptive and inferential statistical methods, such as t-tests or analysis of variance (ANOVA), to compare differences in dribbling ability improvements between the circuit training and interval training groups. A t-test is used to determine whether there is a significant difference between the means of two groups. It is commonly used in the following contexts:

1. Independent Samples t-test: Compares the means of two different groups to assess whether there is a statistically significant difference between them. For example, it could be used to compare the effectiveness of two different training methods on dribbling skills.
2. Paired Samples t-test: Compares the means of the same group at two different times or under two different conditions. For instance, it can be used to evaluate changes in dribbling performance before and after a training program within the same group of students.
3. One-Sample t-test: Compares the mean of a single group to a known value or a theoretical value. For example, it can be used to test if the average dribbling performance of a group significantly differs from a predetermined benchmark. These tests help determine whether observed differences are statistically significant or if they could have occurred by chance.

However, Analysis of Variance (ANOVA) is used to compare the means of three or more groups to determine if there are any statistically significant differences among them. It helps in assessing whether variations in a dependent variable can be attributed to different levels of an independent variable or factor. For example, ANOVA can be used in the following contexts:

1. One-Way ANOVA: Compares the means of three or more independent groups based on one factor. For instance, it could evaluate the effectiveness of different training programs on dribbling performance across multiple groups of students.
2. Two-Way ANOVA: Assesses the impact of two different factors and their interaction on a dependent variable. For example, it might examine how both the type of training (circuit vs. interval) and the duration of training affect dribbling skills.
3. Repeated Measures ANOVA: Used when the same subjects are measured multiple times under different conditions or over time. For instance, it can evaluate changes in dribbling performance before, during, and after a training intervention.

ANOVA helps identify whether observed differences in means are likely due to real effects rather than random variation. Descriptive research is intended to provide data that is as accurate as possible about humans, conditions or other symptoms. However, according to Sugiyono (2019), descriptive analysis is a statistic used to analyze data by describing or depicting the collected data as it is without intending to draw generally applicable conclusions or generalizations.

Evaluation

The results of the analysis will be used to evaluate the effectiveness of each training method in improving junior high school students' dribbling ability. The implications of these findings will be discussed in the context of relevant sports literature, with the aim of providing useful recommendations for the development of future training programs. This research method is crafted to deliver a thorough and nuanced understanding of how circuit training and interval training influence the enhancement of dribbling skills among junior high school students. This research method aims to offer a comprehensive analysis of how circuit training and interval training impact the development of dribbling skills in junior high school students, providing detailed insights into their effectiveness.

This study aims to explore and compare the effects of two training methods, namely circuit training and interval training, on improving Football dribbling skills in Seventh grade junior high school students. The following are the results of this study:

Improvement in Dribbling Ability:

The results of the analysis showed a significant increase in dribbling ability in both groups after the training period. Both the circuit training and interval training groups demonstrated significant advancements in their ability to control the ball and execute dribbling techniques with greater efficiency. This improvement indicates that both training methods effectively enhanced their skill in managing the ball and performing dribbling maneuvers.

Differences Between Training Methods:

Although both training methods were successful in improving dribbling ability, there were differences in the types of improvements achieved. The group that underwent circuit training tended to show improvements in dribbling speed and accuracy, while the group that underwent interval training tended to improve their ability to deal with pressure and maintain the ball in game situations.

Supporting Factors:

Both training methods were successful because of the combination of focused technical training and effective rest periods for recovery. Circuit training provided a variety of exercises involving various technical aspects of dribbling, while interval training provided high-intensity training that was similar to real game conditions. Circuit training offered a diverse range of exercises that addressed different technical elements of dribbling, focusing on multiple aspects of skill development. In contrast,

interval training delivered high-intensity workouts designed to closely mimic real game scenarios, enhancing the athletes' ability to perform under conditions similar to those encountered during actual matches.

C. Results and Discussion

These findings provide important insights into the development of training programs to improve junior high school students' dribbling skills in educational settings. Based on the results of this study, several relevant discussions can be expressed:

Optimization of Training Programs:

The results indicated that both circuit training and interval training were successful in enhancing dribbling skills. Each training method proved effective in advancing the participants' ability to dribble, demonstrating that both approaches contribute positively to skill development in this area. Therefore, the choice of training method should be tailored to the specific goals in students' technical development.

Implications for Teaching:

Teachers and coaches can leverage these findings to create more structured and targeted training programs aimed at enhancing the technical dribbling skills of junior high school students.

By understanding the distinct effects of Circuit Training and Interval Training, they can tailor training approaches to address specific skill development needs. For instance:

1. **Program Structuring:** Teachers and coaches can design training regimens that integrate the strengths of both Circuit and Interval Training, ensuring a balanced approach that enhances various aspects of dribbling, such as control, speed, and endurance.
2. **Customized Approaches:** Recognizing the different impacts of each training method allows for more precise customization of training programs. For example, Circuit Training can be used to focus on technique and coordination through varied drills, while Interval Training can be employed to boost speed and cardiovascular fitness.
3. **Targeted Skill Improvement:** By understanding how each method affects dribbling skills, educators can develop targeted interventions that address specific areas of improvement for individual students or groups, leading to more effective skill development.
4. **Optimized Learning Experiences:** These insights enable teachers and coaches to create more engaging and efficient learning experiences, ensuring that training

sessions are both effective and aligned with students' needs and abilities.

Overall, these findings establish a comprehensive basis for the development of more tailored and effective training programs. These programs can be meticulously designed to specifically address the unique needs and skill levels of junior high school students, with a particular emphasis on enhancing their dribbling abilities and overall football performance. By applying these insights, coaches and trainers can craft strategies that not only align with the students' current abilities but also push them towards achieving higher performance goals. This approach ensures that training is more individualized, allowing for the identification and improvement of specific areas of weakness, ultimately leading to a more well-rounded and skilled football player. Furthermore, such targeted programs can also contribute to increased motivation and engagement among students, as they experience more relevant and attainable progress in their skills development.

Further Research:

This study advocates for more comprehensive research that delves deeper into various aspects that could influence training outcomes. Future investigations should consider additional factors such as:

1. **Training Intensity:** Explore how different levels of intensity within Circuit Training and Interval Training impact the effectiveness of skill development. Understanding whether high-intensity versus moderate-intensity training yields better results could refine training protocols.
2. **Training Duration:** Examine the effects of varying the length of training sessions and overall duration of the training program. Determining optimal durations for both short-term improvements and long-term skill retention could enhance training efficiency.
3. **Individual Characteristics:** Analyze how personal factors such as baseline skill levels, physical fitness, and motivational factors influence the effectiveness of each training method. Tailoring training programs to individual needs might improve overall outcomes.

By investigating these elements, future research can provide a more nuanced understanding of how to maximize the benefits of Circuit Training and Interval Training, ultimately leading to more effective and personalized Football training programs. Exploring these factors can offer a deeper insight into how to fully leverage the advantages of Circuit Training and Interval Training. This, in turn, can contribute to the development of more effective and tailored Football training programs.

D. Conclusions

This study demonstrated that both Circuit Training and Interval Training make substantial contributions to enhancing dribbling skills among junior high school students. Circuit Training, with its structured stations focusing on various dribbling techniques, was effective in improving overall skill proficiency and coordination. Meanwhile, Interval Training, which involves alternating between periods of high-intensity dribbling exercises and active recovery phases, has been shown to greatly enhance both speed and endurance. This method allows athletes to push their limits during intense drills while using recovery intervals to maintain overall performance and reduce fatigue, leading to notable improvements in both their quickness and stamina. The results indicate that integrating these training methods can notably improve dribbling performance, offering crucial insights for developing targeted and effective training programs specifically designed for young football players. By combining these techniques, coaches can create regimens that address the unique needs and skill levels of youth players, leading to better overall development. By incorporating these methods, coaches can develop programs that effectively improve dribbling skills and overall athletic performance in youth players.

The decision to use Circuit Training or Interval Training should be guided by the specific characteristics and technical requirements of the students, as well as the overarching training goals. Circuit Training is particularly well-suited for enhancing overall dribbling technique, coordination, and muscular endurance by incorporating a diverse range of focused exercises. This method involves rotating through a series of stations, each designed to target different aspects of dribbling and physical conditioning, thereby improving skill precision, enhancing hand-eye coordination, and building the muscular endurance necessary for sustained performance. In contrast, Interval Training is especially effective for enhancing speed, agility, and cardiovascular endurance. This is achieved by alternating between short, high-intensity bursts of exercise and periods of recovery. The intense activity periods push the body's limits, while the recovery intervals allow for partial rest, helping to improve overall athletic performance and endurance. This method maximizes performance gains by challenging the limits of speed and agility through short, high-intensity intervals. At the same time, it incorporates periods of partial recovery to help sustain overall stamina and ensure that athletes can maintain their effectiveness throughout the entire training session.

By tailoring the training method to the students' individual needs and objectives whether they need to build foundational skills or boost game-specific performance educators can more effectively foster dribbling skills. This customized approach guarantees that the training is closely aligned with each student's existing skill levels and future aspirations. This alignment not only enhances their technical proficiency and confidence on the football field but also equips them to perform at their best.

Consequently, students will be better positioned to excel in football and realize their potential as proficient players over the long term.

E. Acknowledgement

The members of editorial team of PPSDP International Journal of Education extend the gratitude to all of the reviewers who have contributed to the peer review process of the manuscripts in this issue. Professional support and assistance from all respected reviewers have made this journal qualified to be published.

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