The effect of the interaction between shooting training from different positions of the ball and eye coordination on the soccer shooting accuracy

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Abstract

This study aims to determine the effect of interaction between shooting training in terms of ball position and foot eye coordination on football shooting accuracy.

The determination of the research method can be influenced by the object of research. In this study, the method chosen was the experimental method. Data preparation in this study was carried out using a 2x2 factorial research design framework. This research aims to compare two different treatments of research subjects by applying factorial design techniques. The choice of the experimental method is considered an appropriate approach because this method involves a series of trials that include an initial test, a practice session, and ends with a final test to evaluate the results. Data collection required for this research was carried out at the UPTD SPNF SKB Salatiga football field located at Jl. Soekarno Hatta, Cebongan, Argomulyo District, Salatiga City, Central Java Province. This research was conducted over a 6 week period in February - March 2024, on Tuesdays, Wednesdays and Fridays. The training duration for each meeting is 90 minutes, with a schedule of 15.30-17.00 on Tuesdays and Wednesdays, and 14.30-16.00 on Fridays. The total number of meetings reached 16 times, excluding the initial and final tests.

Players who have high ankle coordination who get a stationary ball training method, have an average shooting accuracy of 15.10. While players who have high ankle coordination and get a moving training method have an average shooting accuracy of 11.20. Players who have low foot-eye coordination who get the moving ball training method have an average shooting accuracy in soccer games of 9.20. Players who have low foot-eye coordination and get a stationary ball training method have an average shooting accuracy result of 8.80.

There is an interaction between training methods and ankle coordination on the results of shooting accuracy in soccer games. In players who have high ankle coordination and get a stationary ball training method gives the effect of better results than players with low ankle coordination. Players of the moving ball training method with low ankle coordination give the effect of better results than the stationary ball training method.

Keywords: Shooting, Training, Football

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Анотація

Салфатуссабіла Ашідікі, Сісвандарі, Фаділла Умар, Сламет Ріяді. Вплив взаємодії між тренуванням ударів з різних позицій м’яча та координації очей на точність кидка у футболі

Обґрунтування і мета

Це дослідження має на меті визначити вплив взаємодії між тренуванням ударів з різних позицій м’яча та координації очей та ніг на точність кидка у футбол.

Матеріал і методи

На визначення методу дослідження може впливати об’єкт дослідження. У цьому дослідженні було обрано експериментальний метод. Підготовка даних у цьому дослідженні здійснювалася за допомогою факторної схеми дослідження 2х2. Це дослідження спрямоване на порівняння двох різних методів лікування суб’єктів дослідження шляхом застосування методів факторного проектування. Вибір експериментального методу вважається відповідним підходом, оскільки цей метод передбачає серію випробувань, які включають початковий тест, практичне занять та закінчуються остаточним тестом для оцінки результатів. Збір даних, необхідних для цього дослідження, проводився на футбольному полі UPTD SPNF SKB Salatiga, розташованому за адресою Jl. Сукарно Хатта, Себонган, район Аргомуліо, місто Салатіга, провінція Центральна Ява. Це дослідження проводилося протягом 6 тижнів у лютому – березні 2024 року по вівторках, середах і п’ятницях. Тривалість тренінгу для кожної зустрічі – 90 хвилин, розклад 15.30-17.00 у вівторок та середу та 14.30-16.00 у п’ятницю. Загальна кількість зустрічей досягла 16 разів, без урахування початкових і підсумкових тестів.

Результати

Гравці з високою координацією гомілковостопного суглоба, які використовують метод тренування з нерухомим м’ячем, мають середню точність кидка 15,10. У той час як гравці, які мають високу координацію гомілковостопного суглоба і використовують рухливий метод тренування, мають середню точність кидка 11,20. Гравці з низькою зоровою координацією, які тренуються з рухомим м’ячем, мають середню точність кидка у футбольних матчах 9,20. Гравці, які мають низьку зорові-ножну координацію та тренуються з нерухомим м’ячем, мають середній результат точності кидка 8,80.

Висновки

Існує взаємодія між методами тренування та координацією гомілковостопного суглоба на результати точності кидка у футбольних матчах. У гравців, які мають високу координацію гомілковостопного суглоба та отримують нерухомий метод тренування з м’ячем, дає ефект кращих результатів, ніж у гравців з низькою координацією гомілковостопного суглоба. Гравці, які використовують метод тренування з рухомим м’ячем і мають низьку координацію щиколотки, дають ефект кращих результатів, ніж метод тренування з нерухомим м’ячем.

Ключові слова

Стрільба, Тренування, Футбол
Introduction

Soccer is a team game where each player has their own duties, such as defenders, midfielders, attackers, and goalkeepers [1]. These tasks are included and supported by excellent technical mastery. The basic techniques of soccer are mastered and well understood by every soccer athlete [2]. Soccer motion techniques consist of various basic skills such as running, dribbling, passing, and shooting, also called technical skills. Basic technique is the most important thing in soccer. You need to know that to play soccer you must have basic skills in playing soccer [3].

Shooting training in soccer needs to be carried out systematically and continuously in order to achieve training targets [4]. Given that kicking is one of the crucial aspects in the game of soccer, it is important for a player to develop skills in kicking the ball [5]. Success in kicking the ball in the context of soccer involves the ability to predict the distance and determine the direction the ball will go [6]. Therefore, a player who wants to execute a kick must be able to estimate how far and where the ball will be directed. Thus, in addition to mastering the basic kicking techniques, a player also needs to have adequate leg strength to achieve the goal of kicking in accordance with the desired distance and direction [7].

The ability of a player to execute a kick towards the opponent's goal involves combining elements of shooting techniques and a number of basic shooting principles [8]. The shooting execution process includes several stages, such as preparing and adjusting the position of the foot with the ball, foot steps, swing movements before kicking, and optimizing the execution of kicks [9]. The level of shooting expertise of a soccer player is reflected in the intensity of the training applied. The exercise is an effort that is carried out repeatedly and continuously aimed at improving the desired abilities and skills [10]. To achieve the desired results, it is important that training is programmed, scheduled, and continues consistently [11].

Coordination is a basic requirement in almost all types of sports, both those carried out individually and in groups [12]. In the context of soccer games, there are two types of coordination, namely coordination of motion between hands, feet, and eyes. The level of coordination of a person's movements can be seen from his ability to carry out movements with varying degrees of difficulty quickly and efficiently, and with a high level of accuracy. Coordination plays a crucial role in achieving accuracy in shooting towards the goal in a soccer game [13].

There are two types of eye-foot coordination, namely high eye-foot coordination and low eye-foot coordination [14]. The difference in coordination between the eyes and feet of each player is considered a determining factor in developing the ability to play soccer, especially in achieving accuracy in shooting [15]. The difference in coordination between the eyes and feet between players is an important factor that must be considered in designing training methods that are suitable for the characteristics of each player, so that the training results can reach the optimal level according to the potential possessed by each player [16].

There are two factors that affect accuracy, namely internal factors and external factors [17]. Internal factors involve elements that originate from within the subject and can be regulated by the subject. In contrast, external factors are influenced by factors from outside the subject, which are beyond the subject's control. Factors that affect accuracy include feelings, ability to anticipate movements, experience, previous ability, type of skill, and level of difficulty [18].

Material and Methods

The determination of the research method can be influenced by the object of research. In this study, the method chosen was the experimental method. The experimental method is an approach used to identify the causal relationship between two factors that are deliberately induced by researchers by eliminating or reducing other factors that can affect.

This study aims to compare two different treatments on research subjects by applying factorial design techniques. The selection of the experimental method is considered an appropriate approach because this method involves a series of trials that include initial tests, training sessions, and ends with a final test to evaluate the results. Data preparation in this study was carried out using a 2x2 factorial research design framework. This research design can be illustrated as follows (Table 1).
Table 1

<table>
<thead>
<tr>
<th>Variable Atributif</th>
<th>Foot-Eye Coordination (B)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>High (B1)</td>
</tr>
<tr>
<td>Exercise Method (A)</td>
<td>Silently Ball Shooting Practice (A1)</td>
</tr>
<tr>
<td>Practice Shooting a Moving Ball (A2)</td>
<td>A2B1</td>
</tr>
</tbody>
</table>

Description:
- A1B1: Group of players with a high level of toe coordination given training using the stationary ball shooting method.
- A2B1: Group of players with a high level of foot-eye coordination given training using the moving ball shooting method.
- A1B2: The group of players with a low level of foot-eye coordination is given training using the stationary ball shooting method.
- A2B2: The group of players with a low level of foot-eye coordination is given training using the moving ball shooting method.

The data required for this study were collected at the soccer field of UPTD SPNF SKB SALATIGA which is located at Jl. Soekarno Hatta, Cebongan, Argomulyo District, Salatiga City, Central Java Province. The research was conducted over a 6-week period in February - March 2024, on Tuesdays, Wednesdays, and Fridays. The training duration for each meeting was 90 minutes, with the schedule at 15.30-17.00 on Tuesday and Wednesday, and 14.30-16.00 on Friday. The total number of meetings is 16, excluding the initial and final tests.

Results

Research hypothesis testing is carried out based on the results of data analysis and variance analysis interaction. To find out the difference, the Anova test is needed, the Anova summary results show a significant difference. The next step is to find out which one is better, then the Tukey test is needed. The tekey test is taken to answer the hypothesis in chapter II in accordance with the sequence. The results of data analysis needed for hypothesis testing are as follows (Table 2).

Table 2

<table>
<thead>
<tr>
<th>Source</th>
<th>Type III Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corrected Model</td>
<td>249.075</td>
<td>3</td>
<td>83.025</td>
<td>14.673</td>
<td>0.000</td>
</tr>
<tr>
<td>Intercept</td>
<td>4906.225</td>
<td>1</td>
<td>4906.2</td>
<td></td>
<td>0.000</td>
</tr>
<tr>
<td>Eye-foot coordination</td>
<td>172.225</td>
<td>1</td>
<td>172.225</td>
<td>30.437</td>
<td>0.000</td>
</tr>
<tr>
<td>Method_Shoooting_Ball</td>
<td>30.625</td>
<td>1</td>
<td>30.625</td>
<td>5.412</td>
<td>0.026</td>
</tr>
<tr>
<td>Foot-eye coordination * Ball-shooting method</td>
<td>46.225</td>
<td>1</td>
<td>46.225</td>
<td>8.169</td>
<td>0.007</td>
</tr>
<tr>
<td>Error</td>
<td>203.7</td>
<td>36</td>
<td>5.6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>5359.0</td>
<td>40</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Corrected Total</td>
<td>452.775</td>
<td>39</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

On the basis of the above figure, the shape of the change line has a meeting point or crossover. Between the training method and ankle coordination at the crossing point. This means that there is a significant interaction between the two. The figure shows that the training method and ankle coordination affect the results of shooting accuracy in soccer games.

Discussion

Accuracy refers to a person's ability to control free movement towards a target [19]. This target can be a certain distance or a direct object that must be reached with certain body parts. In a soccer game, there are many factors that can affect the level of accuracy, and it is important to understand and learn these aspects to support the ability to carry out various movements such as kicking, heading, controlling the ball and so on [20]. When kicking, attention should not only be focused on the leg that kicks, but also on the leg used as a fulcrum, while keeping the gaze focused on the ball and both feet. Shooting accuracy can increase naturally to develop player skills by using a shooting training program using targets carried out repeatedly according to the compiled training program [21].

The difference in the value of shooting accuracy in soccer games in each cell can be seen as follows:
Players who have high ankle coordination who get a stationary ball training method, have an average shooting accuracy of 15.10. While players who have high ankle coordination and get a moving training method have an average shooting accuracy of 11.20.

Conclusion: the group with the stationary ball training method with high ankle coordination gives a better influence on the results of shooting accuracy in soccer games than the group with the moving ball training method on players with high coordination.

Players who have low foot-eye coordination who get the moving ball training method have an average shooting accuracy in soccer games of 9.20. Players who have low foot-eye coordination and get a stationary ball training method have an average shooting accuracy result of 8.80.

Conclusion: the group with the moving ball training method with low ankle coordination gives a better influence on the results of shooting accuracy in soccer games compared to the group with the stationary ball training method on players with low coordination.

Based on the research results obtained, the stationary ball training method is more suitable if given to players with a high level of toe coordination while players with a low level of toe coordination are more suitable with a moving ball training pattern.

Conclusions

There is an interaction between training methods and ankle coordination on the results of shooting accuracy in soccer games. In players who have high ankle coordination and get a stationary ball training method gives the effect of better results than players with low ankle coordination. Players of the moving ball training method with low ankle coordination give the effect of better results than the stationary ball training method.

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