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The Effect of Training Using Equipment on Some Skills And Motor Variables to Develop The Tactical Aspect of Youth Foot

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ABSTRACT
This study investigates the impact of systematically structured and scientifically grounded sports training program on the comprehensive development of youth football players. The research focuses on enhancing physical, technical, psychological, and cognitive competencies to optimize athletic performance. Given the role of youth athletes as a vital talent pipeline for professional clubs and national teams, the objective is to improve their performance levels through targeted training interventions. Materials and Methods. The study involved a sample of 34 youth players from Al-Karkh Football Club, all aged 19 years, representing their team in the Iraqi Premier League. An experimental research design was employed, dividing participants into two groups: an experimental group and a control group. The experimental group underwent a specialized training regimen developed by the researcher, while the control group continued with conventional training methods. The study assessed key technical skills— scoring, passing, and dribbling—as well as motor abilities, including agility, transitional speed, and motor response. Results. The findings demonstrated that the experimental group, which engaged in the researcher-designed training program, exhibited significant improvements in both physical attributes and technical skills compared to the control group. These enhancements were evident in measures of skill execution and motor ability performance. Conclusion. The study concludes that the implementation of scientifically structured and purpose-driven training programs effectively enhances the physical and technical capabilities of youth football players. Such targeted interventions are recommended to develop young athletes who serve as essential contributors to the talent pool of professional football clubs and national teams.

Keywords: Training Equipment; Motor Skills; Tactical Development; Youth Football Players.

ABSTRAK

Studi ini menyelidiki dampak program pelatihan olahraga yang terstruktur secara sistematis dan didasarkan secara ilmiah terhadap pengembangan komprehensif pemain sepak bola remaja. Penelitian ini berfokus pada peningkatan kompetensi fisik, teknis, psikologis, dan kognitif untuk mengoptimalkan kinerja atletik. Mengingat peran atlet muda sebagai jalur bakat penting bagi klub profesional dan tim nasional, tujuannya adalah untuk meningkatkan tingkat kinerja mereka melalui intervensi pelatihan yang ditargetkan. Bahan dan Metode. Studi ini melibatkan sampel 34 pemain muda dari Klub Sepak Bola Al-Karkh, semuanya berusia 19 tahun, mewakili tim mereka di Liga Premier Irak. Desain penelitian eksperimental digunakan, membagi peserta menjadi dua kelompok: kelompok eksperimental dan kelompok kontrol. Kelompok eksperimental menjalani rejimen pelatihan khusus yang dikembangkan oleh peneliti, sedangkan kelompok kontrol melanjutkan dengan metode pelatihan konvensional. Studi ini menilai keterampilan teknis utama — mencetak gol, mengoper, dan menggiring bola — serta kemampuan motorik, termasuk kelincahan, kecepatan transisi, dan respons motorik. Hasil. Temuan ini menunjukkan bahwa kelompok eksperimental, yang terlibat dalam program pelatihan yang dirancang oleh peneliti, menunjukkan peningkatan yang signifikan dalam atribut fisik dan keterampilan teknis dibandingkan dengan kelompok kontrol. Peningkatan ini terbukti dalam ukuran eksekusi keterampilan dan kinerja kemampuan motorik. Kesimpulan. Studi ini menyimpulkan bahwa implementasi program pelatihan yang terstruktur secara ilmiah dan digerakkan oleh tujuan secara efektif meningkatkan kemampuan fisik dan teknis pemain sepak bola remaja. Intervensi yang ditargetkan semacam itu direkomendasikan untuk mengembangkan atlet muda yang berfungsi sebagai kontributor penting bagi kumpulan bakat klub sepak bola profesional dan tim nasional.

Kata Kunci: Peralatan Pelatihan; Keterampilan Motorik; Pengembangan Taktis; Pemain Sepak Bola Remaja.

INTRODUCTION

Football is a sport that relies heavily on fair play, as it is very close to physical contact, which involves almost all parts of the body in the game of ball so that the ball does not concede on its own goal which can result in defeat (Adam Mappaompo et al., 2024; Arga et al., 2025).

Sports training is a purposeful and systematically organized educational process that relies on scientific planning to develop players at different levels according to their physical, technical, psychological, and cognitive capacities. The primary objective of such training is to enhance athletes' overall performance and enable them to reach their highest potential (Lochhead et al., 2024). Within this framework, youth players serve as a crucial source of talent for both professional clubs and national teams. Consequently, it is essential to continuously improve their performance to ensure a sustainable pipeline of skilled athlete (Van Assen, 2021).

This study focuses on the development of key technical skills—such as scoring, passing, and dribbling—and essential motor abilities, including agility, transitional speed, and motor response, among youth football players. A comparative analysis was conducted to assess the performance levels of players from various Iraqi Premier League clubs in these abilities, to identify both strengths and areas for improvement.

Despite the importance of comprehensive training programs, many coaches working with youth players tend to overlook the integration of exercises that utilize assistive equipment. These tools can play a significant role in enhancing both technical execution and motor performance. The absence of such exercises in daily training regimens has contributed to a decline in certain aspects of player performance. In response to this issue, the present study was conducted with two primary objectives. The first was to design and implement a series of exercises incorporating specific skill and motor variables to enhance the tactical performance of football players aged 19 years. The second was to examine the effect of training using equipment on improving these variables and, consequently, the tactical aspect of youth football players.

The study hypothesized that there would be statistically significant differences between the pre-test and post-test results of both the experimental and control groups, favoring the post-test. Furthermore, it was expected that the experimental group would show superior performance compared to the control group following the intervention. Of basic basketball techniques, especially in improving students' free-throw shooting abilities. Materials and Methods: Study Participants.

METHOD

Study participants

The study participants were carefully selected to ensure they accurately represented the target population relevant to the research problem. A purposive sample of 20 youth football players from Al-Karkh Sports Club, aged 19 years, was chosen. These participants were equally divided into two groups: an experimental group and a control group. Through preliminary testing and statistical validation using an independent sample t-test, the two groups' skill-related and motor skills were shown to be equivalent before the intervention. During the 2024-2025 In Baghdad, an experiment was conducted on ten young players from the Al-Naft Sports Club, in addition to the main research subjects. We conducted this pilot study at the Al-Naft Sports Club stadium on November 6, 2024, at 4:00 p.m. This pilot project was designed to identify the needs of football players Identifying any problems and assessing the support team's ability to use assistive devices. The knowledge gathered from this initial phase helped refine testing methods and ensure that, the pre-tests initial study procedures ran smoothly. On November 7, 2024, at 4:00 PM, the pre-tests were conducted for the initial research sample at the Al-Karkh Sports Club stadium. To ensure identical testing conditions for both groups, the researcher took all necessary precautions

Study organization

The researcher employed an experimental study design. Pre- and post-tests were administered to both the experimental and control groups to measure the outcomes. This methodological technique was chosen because it was appropriate for achieving the study objectives and could yield valid and reliable results (Majed, 2016). The experimental group participated In a systematic training program that included exercises using assistive technology, these factors were motor response, agility, passing, dribbling, scoring, and transition speed. Improving the players' tactical performance was the primary goal of the intervention. On the other hand, the control group used a traditional training schedule free of assistive technology. The two primary goals were The study

aims to (1) develop and implement specialized exercises using assistive technology to improve specific motor and skill variables and (2) evaluate the effect of these exercises on the tactical performance of 19-year-old young soc cer players. The study hypothesized that the pre- and post-test results of both.

The experimental and control groups would change significantly With favorable posttest results, the experimental group was expected to demonstrate superior posttest performance compared to the control group, confirming the effectiveness of the equipment-based training intervention. A 24-module training program spread over eight weeks, from November 8, 2024, to January 8, 2025, was created and administered by

The researcher after the experimental group. The team incorporated50 minutes of exercise was incorporated into their regular training regimen, held three times a week on Saturdays, Mondays, and Wednesdays. Individual differences, age, training level, and group physical abilities were taken into account when designing the training curriculum. In line with best practices in sports training, scientific concepts such as progressive exercise intensity were used to increase from simple to more challenging (Prusak III et al., 2013). Proven research and advice from sports training experts influenced the program design(McMillan et al., 2005; Shareef & Digham AG, 2022). Post-tests were conducted on January 9, 2025, after the intervention to assess how the assistive-based exercises affected the team's motor and skill factors as well as their tactical performance. The researcher used conditions and methods throughout the study participants' motor and skill-related factors as well as their tactical performance. Throughout the study, the researcher used standardized testing circumstances and methods to guarantee accuracy, consistency, and dependability.

Statistical analysis.

The researcher used the Statistical Package for the Social Sciences (SPSS) program (O'Donoghue, 2013). To ensure the accuracy and reliability of interpreting the study results, several statistical methods were used, including the arithmetic mean, median, standard deviation, coefficient of deviation, independent samples t-test, and paired samples t-test Pearson's simple correlation coefficient and percentages were used to assess data distribution and consistency, compare the experimental and control groups, and ascertain the impact of the training program on skill and motor variables, as well as the tactical performance of young soccer players. All necessary steps were taken to ensure the accuracy and consistency of the data during the analysis process

RESEARCH RESULT

This chapter provides a comprehensive examination of the test results from the research sample. Both statistical methods were used to process and analyze the data, including Pearson's correlation, mean, median, and standard deviation. Correlation coefficients, independent samples t-tests, and percentage values were also used. A program called the Statistical Package for Science (SPSS) was used to analyze the data (O'Donoghue, 2013).

The Statistical analysis aims to address the study objectives and test hypotheses. Statistics are most consistent with the research title and are used to assess the significance of differences and relationships between research variables, while descriptive statistics provide an overview of the main trends and dispersion of the data.

0.05 was the probability threshold at which all statistical significance was assessed ($p < 0.05$). A p value less than this threshold was considered statistically significant. The means and deviations are summarized below Standard deviations, t-values, and significance levels for.

The pre- and post-test results of motor and skill variables are presented. The presentation of the results in several statistical tables is followed by a detailed analysis based on the theoretical framework of the study

Descriptive Statistics of Pre-Test Skill and Motor Variables for Experimental and Control Groups

Table 1. Displays the mean, standard deviation, median, and skewness coefficient associated with the motor abilities pre-test findings for both the experimental and control groups.

Skewness Coefficient	Median	Standard Deviation	Mean	Unit of Measurement	Processing Variable
-0.146	5	4.809	5.575	Seconds	**Transition Speed**
0.617-	6.01	0,562	06.03	Seconds	**Agility**
0.27	1.815	0.072	1.828	Seconds	**Motor Response**

Descriptive Statistics of Pre-Test Technical Skill Variables

Table 2. Shows The Descriptive Statistics For The Pre-Test Results Of Technical Skill Variables.

Skewness Coefficient	Median	Standard Deviation	Mean	Unit of Measurement	Processing Variable
0,174	8	2.974	8.25	Degree	**Shooting**
-0,468	50	3.309	50.212	Degree	**Passing**
0.389	20.1	2.002	20.541	Seconds	**Dribbling**

Correlation Analysis Between Motor Abilities

Table 3. Illustrates the correlation coefficients between different motor abilities.

Variable		Transition Speed	Motor Response
Correlation	(r)	0.162-	0.156-
	Error Rate	0.31	00.33
Explosive Power	(r)		0.262
	Error Rate		0.09

Correlation Analysis Between Technical Skills and Motor Abilities

Table 4. Presents The Correlation Between Technical Skills And Motor Abilities.

Variable		**Shooting**	**Dribbling**
Correlation	(r)	0.141	0.137-
	Error Rate	0.38	0.39
Shooting	(r)		0.091-
	Error Rate		0.57

Correlation Between Scoring and Motor Abilities

Table 5. Summarizes The Correlation Analysis Between Scoring Performance And Various Motor Abilities.

Significance	Error Rate	Correlation Coefficient	Unit of Measurement	Processing Variable
Not significant	0.88	-0.023	Seconds	Transition Speed
Not significant	0.09	0.265-	Seconds	Agility
Not significant	0.51	0.106	Seconds	Motor Response

Correlation Between Passing Skill and Motor Abilities

Table 6. Provides The Correlation Results Between Passing Performance And Motor Abilities.

Significance	Error Rate	Correlation Coefficient	Unit of Measurement	Processing Variable
Not significant	0.35	-0.147	Seconds	Transition Speed
Not significant	0.06	-0.308	Seconds	Agility
Not significant	0.67	0.067	Seconds	Motor Response

Correlation Between Dribbling and Motor Abilities

Table 7. Shows The Correlation Coefficients Between Dribbling Skills And Motor Abilities.

Processing Variable	Unit of Measurement	Correlation Coefficient	Significance Error Rate	Significance
Variable	Seconds	0.281-	0.07	Not significant
Agility	Seconds	*0.365	0.01	Not significant
Motor Response	Seconds	0.050	0.75	Not significant

Interpretation of Findings.

The analysis of the pre-test data showed no significant differences between the experimental and control groups, confirming the equivalence of both groups before the intervention. The correlation analyses indicated varying degrees of relationships between the different skill-related and motor variables. Notably, a significant correlation was observed between agility and dribbling skills (p = 0.01), while other variables demonstrated weak or insignificant correlations. These findings provide a foundation for further analysis of the impact of the intervention in the subsequent post-tests.

Discussion

The, a fast-paced and complex sport, players must apply these fundamental skills to tactical aspects, which requires the development of structured training programs based on precise scientific standards and adapted to the specific requirements of the game (Miguel et al., 2021). A lack of understanding of the training process or the intensity of player training in programs may explain. The research in the correlations between variables Training programs lack organization and coordination between the components of the load, to achieve the desired goal, which measures motor skills and performance (Tantia et al., 2024). In addition, differences may be due to individual differences among players Variations in field experience, adaptability, and physical abilities may have obscured potential associations between motor and skill aspects, leading to different outcomes. These findings support the idea that qualified coaches with experience working to improve motor and skill performance should be proficient in planningIn the training process and the implementation and supervision of successful training programs (Rizki et al., 2024). On the other hand, research has shown a strong relationship between motor skills and player abilities in soccer, using repeated methods to control situations and training variables during training and competition. For example, Ayuso Moreno et al. (2021) discovered an increase in agility and skill performance after implementing a modern training regimen that matched current developments and organized the training program's timing to last for several months.

The study's results also emphasize the importance of coaches focusing on comprehensive training, including the training load, while enabling players to apply the principles of sports training science Players must demonstrate their physical capabilities and utilize them to improve motor skills, taking into account the training load of football. This requires mastering basic skills, such as passing, dribbling, and scoring. The greater the focus on structured training, the greater the likelihood of players achieving better skill performance in competitive situations (Qutaiba Younis and Rashid,

2024) In the context of modern football, where the speed of execution is paramount, players must develop rapid sprinting ability, quick transitions between offense and defense, and the capacity for immediate decision-making under pressure (Banwan Shareef, 2020). Advancements in defensive tactics have made scoring opportunities more limited, necessitating not only accuracy in shooting but also superior perceptual and cognitive skills to read game situations effectively (Usbah et al., 2024).

Speed and strength remain critical components of football performance, underpinning players' ability to accelerate, change direction suddenly, and execute powerful actions such as shooting and tackling (Ben Said et al., 2024; Sonchan et al., 2017; Hadi et al., 2024). The absence of significant correlations between agility and skill-related variables may reflect inconsistencies in.

The long-term application of agility training. Agility, defined as the ability to change body position quickly and accurately, is crucial for successful transitions on the field and effective execution of deceptive movements (Fatimah & Ramah, n.d.; Shareef & Digham, 2022). Without a prolonged and scientifically based training approach, improvements in agility and its transfer to football-specific skills are unlikely to materialize (Ayuso-Moreno et al., 2021) Similarly. The results regarding motor response speed suggest that the lack of integrated training approaches—including physical, technical, and psychological components—negatively impacted the players' ability to respond quickly to stimuli. Motor response speed, the ability to react to external cues within minimal time, is essential in high-speed football scenarios, such as reacting to ball movement or an opponent's actions (Cansu Murat et al., 2020; Fink et al., 2009).

The data analysis highlights the need for better training approaches by pointing to an overall deficit in these abilities. In summary, the lack of discernible relationships between skill performance and motor abilities implies that attacking skills, which are essential for football success, demand more rigorous, regular, and scientifically based training regimens to guarantee accurate execution in games. This is consistent with research by Naser (2019).

The importance of precision and speed in effective offensive play. To close the gap between motor ability and skill performance, future training should include a range of inputs, address psychological and physical aspects, and mimic game situations (Ayuso-Moreno et al., 2021).

CONCLUSION AND RECOMMENDATIONS

The findings of this study indicate that, with the exception of transition speed, which showed significant differences, the motor ability levels of the young soccer players in the sample were mostly similar. Soccer skills, such as scoring and dribbling, were similar across all players, but differences were observed in passing ability This indicates a need for improvement. The most important element affecting dribbling skill is motor response speed. There is no relationship between most motor abilities and skill-related performance, indicating a flaw in the way current training programs are designed and implemented. This highlights the need for more systematic, scientifically based training approaches that focus on improving both football skills and motor abilities simultaneously Given their versatility and potential for development, transition speed and passing accuracy require special attention. These findings also underscore the need for tailored training programs that focus on improving each player's unique skills, as well

as. The need for sustained, long-term training To achieve improved playing situations that enhance player performance, future studies should include different age groups and use a broader range of performance measures to better understand the relationship between motor skills in soccer players

The study's findings, the researcher proposes a goal to improve youth football training programs. First, youth training programs should focus on improving motor skills, particularly transitional speed. In contemporary football, where rapid transitions between attack and defense are essential for competitive performance, transitional speed is crucial Secondly, given the importance of these basic football skills in deciding the match, it is necessary to develop these more complex and interconnected talents. It is necessary to improve the mastery of basic football skills such as passing, dribbling and scoring.Third, it is advised to concentrate on enhancing particular talents that did not exhibit a statistically significant relationship with motor skills in this investigation. Enhancing fundamental football abilities through focused and carefully organized training interventions should get particular attention. Fourth, future studies should broaden their focus to encompass other age groups, employing customized assessments and training regimens that take into account.

The physical prowess and developmental phases of various player categories. This method would provide a more thorough comprehension of the connection between football skills and motor ability at different age ranges. Finally, it is suggested that clubs adopt scientifically grounded criteria for player selection. Incorporating objective measurements, such as motor and skill-related tests, will ensure a more accurate assessment of player potential and readiness to represent their clubs in competitive settings. This scientific approach to player selection and development will contribute to improving the overall performance and success of youth football programs.

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