

MODERN METHODS AND TECHNIQUES FOR THE TECHNICAL TRAINING OF U12 JUNIOR FOOTBALL PLAYERS

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Abstract:

Technical training is a fundamental component of long-term player development, with the U12 age category representing an optimal period for acquiring and refining football-specific motor and technical skills. In the context of contemporary methodological changes in football coaching, traditional training approaches are increasingly being replaced by player-centred models that integrate technical, tactical, and cognitive development.

The aim of this review is to analyse modern technical training methods used with U12 football players and to highlight their practical implications for player development. The paper is based on a critical review of recent scientific literature, including publications from FIFA, UEFA, and peer-reviewed journals in sport sciences.

The analysis indicates that Small-Sided Games, the Constraints-Led Approach, Teaching Games for Understanding, and digital technologies significantly enhance technical performance, decision-making, ball control, and tactical awareness in game-related environments. These approaches promote more effective skill acquisition than traditional isolated technical drills.

It is concluded that implementing contemporary training strategies can improve the quality of technical preparation in youth football and support long-term athlete development. Further experimental studies are recommended to investigate the long-term effects of these methods in U12 players.

Introduction

Football is one of the most widely played and studied sports worldwide, and the development of players in the early stages is a priority for national and international federations. Current training models promote the long-term development of athletes, emphasizing the acquisition of technical, tactical, cognitive, and psychosocial skills in an integrated manner. In this context, the U12 age group is considered a critical stage for consolidating fundamental technical skills, as neuromotor and coordination development facilitates the learning and automation of game-specific movements. Over the past two decades, training methodology in youth football has evolved significantly. Analytical exercises, based on the isolated

repetition of technical skills, are gradually being replaced by player-centered training models, in which technique is practiced in contexts similar to those encountered in competition. This shift is based on research findings in the fields of motor learning and sports pedagogy, which demonstrate that technical skills are reinforced more effectively when associated with processes of perception, anticipation, and decision-making. [1,3,13]

Methodological documents developed by FIFA and UEFA state that the primary objective of training children is not to achieve immediate performance, but to develop players capable of meeting the demands of modern football. To this end, training sessions must provide ample opportunities for ball contact, varied game situations, and chances to solve tactical problems, all within an environment that fosters creativity and autonomy. These principles are reflected in contemporary talent development models and in programs dedicated to grassroots football. One of the most important areas of methodological development is the use of small-sided games (SSG). [4,5,11]

These training formats increase the frequency with which each player is involved in the game, boost the number of technical actions, and create authentic contexts for developing ball control, passing, dribbling, and finishing. Meta-analyses and systematic reviews published in recent years show that programs based on small-sided games produce significant improvements in technical execution and promote the simultaneous development of tactical and physical components. [6,7,12]

In addition to small-sided games, approaches such as the Constraints-Led Approach and Teaching Games for Understanding (TGfU) have transformed the way the training process is designed. These models promote learning through adaptation to the constraints of the game and through problem-solving, rather than the mechanical reproduction of predetermined patterns. Thus, the player becomes an active participant in the learning process, and technique is developed in close connection with the tactical context and the real demands of competition. At the same time, the integration of technology into the training process (video analysis, digital apps, and monitoring systems) provides coaches with objective tools for assessing technical progress and tailoring training to individual needs. Visual feedback and performance analysis allow for the rapid identification of execution errors and the adaptation of coaching interventions to each athlete's specific characteristics. [8,10]

Although the literature contains numerous studies on the effectiveness of various training methods in youth football, there is still a need for a synthesis that integrates recent findings and highlights the practical implications for the U12 age group. Such an analysis is useful for both researchers and coaches involved in training children, contributing to the development of training programs based on scientific evidence. [10,12]

Matherial and method

The purpose of this study is to highlight the effectiveness of using modern technical training methods and techniques in developing football-specific skills among U12 youth players. The study aims to improve dribbling, passing, ball control, shooting on goal, and individual 1-on-1 offensive and defensive actions.

Research Hypothesis: It is hypothesized that implementing a technical training program based on modern methods—small-sided games, integrated technical-tactical exercises, the use of training aids, and video feedback—will lead to significant improvements in the technical skills of U12 youth players compared to traditional training.

The educational experiment can be conducted with a sample of 30 U12 players who are registered with a football club. The players are divided into two equal groups: an experimental group and a control group.

Table 1. Characteristics of the target group

Characteristic	Description
Total number of athletes	30
Age	11-12 yaers
Gender	male
Sports experience	at least 2 years of organized training
Training frequency	3 training sessions per week
Duration of the experiment	12 weeks
Experimental group	15 athletes
Control group	15 athletes

The experiment was structured in three phases: initial testing, the formative phase, and final testing. The experimental group followed a modernized technical training program, while the control group continued with their usual training.

Table 2. Stages of the experiment

Phase	Period	Main Activities
Initial Phase	Week 1	Initial testing, dividing the athletes into two groups
Formative Phase	Weeks 2-11	Implementation of the experimental program
Final Phase	Week 12	Final testing, statistical analysis, and interpretation of results

The literature highlights a paradigm shift in training methodology. Contemporary models promote the integration of technique into real-game contexts and the simultaneous development of technical, tactical, and cognitive components. [3,7]

Among the most important trends are:

- the use of small-sided games, which increase the frequency of ball contact and constantly require decision-making;
- the application of the Constraints-Led Approach by modifying the rules and playing space to stimulate technical adaptation;
- the implementation of the Teaching Games for Understanding (TGfU) model, based on learning tactics through play;
- the use of video analysis and digital feedback to correct technical execution;
- the individualization of training based on each child’s level of development and learning pace.

A key feature of modern training is the integration of technical skills into game situations. Instead of isolating and repeating a pass or a reception, players are involved in sequences that involve: observing the playing environment, choosing the optimal solution, executing the technical skill, and immediately moving into a new position. This approach develops the automation of technical skills under conditions similar to those of competition and facilitates their transfer to official matches. [6,8]

Technological advances have significantly influenced football training. In working with U12 youth players, the following are used: video analysis, apps for evaluating technique, video cameras for immediate feedback, child-friendly GPS sensors, and digital monitoring platforms. Video analysis makes it easier to identify technical errors and allows for comparing performance before and after training. Visual feedback accelerates the learning process because children find it easier to understand their mistakes by observing their own performance. [7,9]

One of the most modern approaches to motor learning is the Constraints-Led Approach. According to this model, the coach does not constantly explain the optimal solution but instead modifies the training environment so that athletes discover effective strategies on their own. Constraints can include: playing space, available time, game rules, number of opponents, number of touches, and goal size. This method fosters creativity and adaptability. [8,9]

Table 3. Modern methods of technical training

Approach/Method	Practical Content	Technical Objective
1v1, 2v2, 3v3, 4v4 games	Situations involving adversity and limited space	Dribbling, ball protection, quick decision-making
Timed technical circuits	Dribbling through cones, changes of direction, finishing	Ball control at speed
Exercises with small goals	Passing, positioning, and marking	Passing accuracy and combination play
Station-based differentiated training	Stations for passing, shooting, juggling, and dribbling	Individualized practice
Brief video feedback	Analysis of performance after practice	Correcting body position and decision-making

Competitive method	Individual and team challenges	Motivation, intensity, engagement
Learning through play	Exercises with simple tactical tasks	Applying technique in actual play

Table 4. Proposed weekly microcycle

Day	Contents	Duration
Monday	Individual skills: dribbling, feints, changes of direction	75 min
Wednesday	Passing, receiving, 3-on-3 and 4-on-4 games	75 min
Friday	Finishing, 1-on-1, skill-based drills	75 min

Table 5. Structure of a training session

Part	Content	Duration
Warm-up	Dynamic ball games, mobility, coordination	15 min
Fundamental Part 1	Technical drills at stations	25 min
Fundamental Part 2	Small-sided games with a technical focus	25 min
Cool-down	Stretching, feedback, brief conclusions	10 min

Five specific tests were used to assess the technical level.

Table 6. Technical Evaluation Tests

Nr.	Test	Description	Unit of measurement
1	Dribbling the ball between cones	The athlete dribbles the ball through cones over a distance of 20 m	seconds
2	Passing to a target	Number of successful passes in 30 seconds to marked areas	points
3	Juggling	Maximum number of consecutive juggles	number
4	Shooting at the goal/targets	10 shots at designated areas of the goal	points
5	1 vs 1	Percentage of individual plays successfully completed	percent

Mathematical Statistics Used:

- Arithmetic mean: $\bar{x} = \Sigma x / n$
- Standard deviation: $SD = \sqrt{[\Sigma(x - \bar{x})^2 / (n - 1)]}$
- Percentage change: $P\% = [(final\ value - initial\ value) / initial\ value] \times 100$
- For the ball-handling test: $P\% = [(initial\ value - final\ value) / initial\ value] \times 100$
- Student's t-test for independent samples: $t = (\bar{x}_1 - \bar{x}_2) / \sqrt{[(s_1^2/n_1) + (s_2^2/n_2)]}$

- Cohen's d effect size: $d = (\bar{x}_1 - \bar{x}_2) / SD_{pooled}$

Table 7. Results for the experimental group

Test	Initial M ± SD	Final M ± SD	Difference	Progress
Dribbling 20 m	18,4 ± 1,3 s	15,9 ± 1,1 s	-2,5 s	13,6%
Passes to a target	12,1 ± 2,0 pct.	17,3 ± 2,1 pct.	+5,2 pct.	43,0%
Juggling	18,7 ± 6,1	31,8 ± 7,4	+13,1	70,1%
Shot on goal	8,3 ± 1,8 pct.	12,6 ± 2,0 pct.	+4,3 pct.	51,8%
Successful 1 vs 1	36,0 ± 8,5%	52,7 ± 9,4%	+16,7 p.p.	46,4%

Table 8. Results for the control group

Test	Initial M ± SD	Final M ± SD	Difference	Progress
Dribbling 20 m	18,2 ± 1,2 s	17,3 ± 1,2 s	-0,9 s	4,9%
Passes to a target	12,4 ± 1,9 pct.	14,1 ± 2,0 pct.	+1,7 pct.	13,7%
Juggling	19,1 ± 5,8	24,2 ± 6,5	+5,1	26,7%
Shot on goal	8,5 ± 1,7 pct.	10,1 ± 1,9 pct.	+1,6 pct.	18,8%
Successful 1 vs 1	35,3 ± 8,1%	42,0 ± 8,8%	+6,7 p.p.	19,0%

Table 9. Comparison of progress across groups

Test	Progress of the experimental group	Control Group Progress	Difference between groups	t	Cohen d	Interpretation
Dribbling 20 m	13,6%	4,9%	+8,7 p.p.	3,33	1,22	high effect
Passes to a target	43,0%	13,7%	+29,3 p.p.	4,27	1,56	high effect
Juggling	70,1%	26,7%	+43,4 p.p.	2,99	1,09	high effect
Shot on goal	51,8%	18,8%	+33,0 p.p.	3,51	1,28	high effect
Successful 1vs1	46,4%	19,0%	+27,4 p.p.	3,22	1,18	high effect

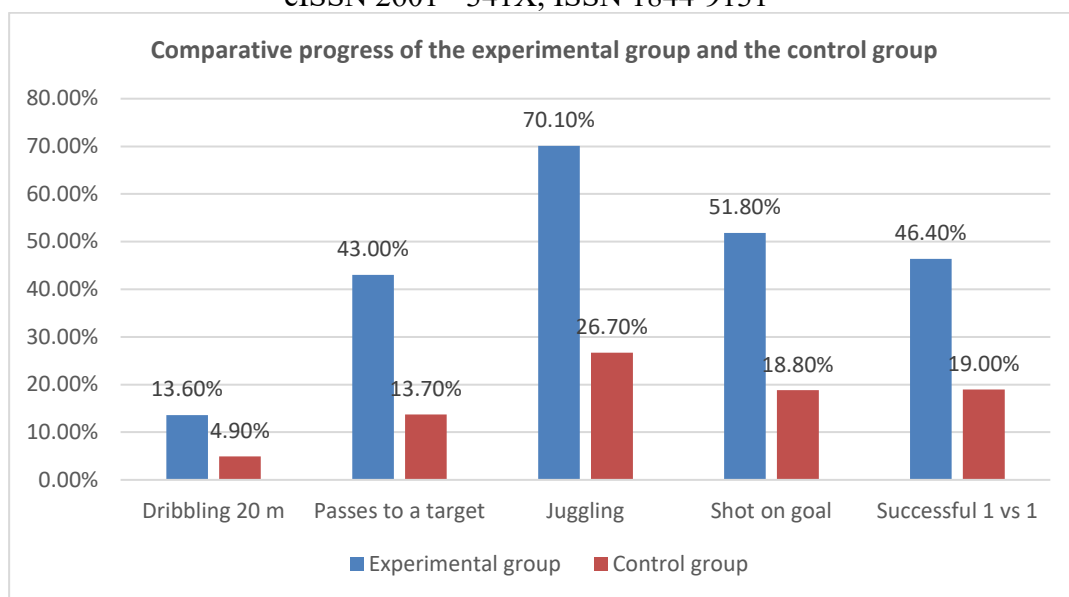


Figure 1. Comparative progress of the experimental group and the control group

Conclusions

The results show that the experimental group performed better on all the technical tests evaluated. The greatest improvement was recorded in the juggling test, where progress was 70.1%, compared to 26.7% in the control group. This increase can be explained by the frequent inclusion of individual ball-control exercises, technical challenges, and differentiated station-based training.

In the target passing test, the experimental group showed a 43.0% improvement, while the control group improved by 13.7%. This difference highlights the effectiveness of modern exercises based on small-sided games, passing under pressure, and rapid changes in the direction of play. In the dribbling test between cones, the experimental group reduced the average time from 18.4 seconds to 15.9 seconds. This improvement suggests enhanced ball control at speed, coordination, and the ability to change direction quickly.

In the shooting test, the experimental group's progress was 51.8%, compared to 18.8% for the control group. This result can be attributed to the use of finishing drills in scoring zones, individual competitions, and immediate feedback provided to the athletes. For 1vs1 situations, the experimental group's success rate increased from 36.0% to 52.7%. This demonstrates that methods based on adversity, direct duels, and play in confined spaces contribute to the development of courage, creativity, and technical efficiency in real-game situations.

The t-test values and Cohen's d coefficient indicate significant differences between the two groups. In all cases, the effect size is large, which supports the

research hypothesis: modern technical training methods produce more consistent improvements than traditional methods.

The main conclusions drawn from the interpretation of the results are:

- Small-sided games help increase the number of touches on the ball and develop quick decision-making.
- Technical drills at stations allow for individualized training and the correction of technique.
- Video feedback and competitive training increase athletes' motivation and engagement.
- The experimental group achieved greater progress on all tests administered.
- The statistical results confirm the effectiveness of the experimental program in the technical training of U12 youth players.

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