Skills test battery for football players under 13 years old

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Abstract

The aim of the study was to identify technical characteristics by constructing a set of standardized technical tests and using them during the selection and evaluation process of football players under the age of 13. We used the descriptive method on a sample of 50 football players from the province of El-Tarf (Algeria), who were selected intentionally. To collect data, we used technical skill tests.

After collecting the results and processing them statistically through factor analysis, we came up with a set of technical tests for coaches to use when picking football players and assessing their level during the season, and building a profile that fits the specific age group.

The findings confirmed that the developed skill tests are both valid and reliable in measuring the essential technical abilities of under-13 players. The study emphasizes that adopting such standardized assessments can contribute to more scientific and transparent approaches in youth talent identification, moving beyond traditional reliance on observational judgment.

This work highlights the importance of integrating research-based tools into football training programs, particularly at early stages of player development, where proper evaluation can strongly influence future performance.

Keywords: Football, technical skills, test battery, factorial construction, under-13 players.

Introduction

Football is part of the collective games that require to rely on theoretical and scientific aspects, taking into account the scientific and objective foundations in order to achieve the objectives set. Therefore, importance should be given to all aspects during the training process so that the level of the players can be upgraded for the better The economic and technological development that has taken place has been In the world, its effective impact on the development and progress of sports events in general and football in particular, since it has had the greatest share of this development and the progress due to the connection of the science of sports training with other sciences and to take advantage to develop and formulate the correct concepts of the coaching process according to the contexts and the modern scientific foundations of coaching,

the science of coaching has developed rapidly and its theories have taken a new direction to follow modern football trends in terms of playing methods, skillful and technical performances, tactical movements and high physical abilities, and in light of the spread of professionalism and more complex performances and sophisticated, the more necessary it is to keep up with all that is new in the science of sports training is a necessity that must be taken into account when planning the training process and developing its programs.

Performance is the main objective that each team seeks to achieve, so the countries compete in search of ways to ensure and study the best bases to select players with all the dimensions, stages and requirements of these means, because it is no longer enough to rely on personal experience, superficial observation and chance to arrive at the optimal choice, but it has become necessary to take into account the causes and stages of science and rely on standardized observation, field and laboratory experimentation, and tests and measurements that reveal special abilities, which allow the player to excel and be creative (Al-So'ud, 2013) Achieving high levels in any of the sports is linked to a set of scientifically proven procedures and steps to select an athlete.

Therefore, tests and standards are a necessary scientific means for the pursuit of legalized scientific progress in the field of sport in order to reach high standards and achieve achievement and ideal performance.

The basic skills in football are a specific type of work and performance that requires the use of muscles to move the body or some of its parts in order to obtain particular physical performances. In this way, it depends mainly on the movement and includes an interaction between cognitive processes and emotional cognitive processes to achieve integration in the performance, and here we must know There are certain basic skills which

mainly depend on the technique of performance , and there are other skills that depend on the ability of the player to respond to external stimuli related to others in real competitive situations, and this is what actually happens in football activity, and we also notice that some players appear in a way that is characterized by They excel in skillful performance during training, but they do not show the same level during matches because they are unable to respond properly to different game situations.

And since the learning of basic skills in football is the process by which the skillful behavior of the player is modified or changed, the modification or change must be the outcome or result of what may happen to the personality of the player at the end of the educational situation, and since skillful performance motor learning is a developmental process The individual's capacity for movement to perform the skill and master it in the form of physical and motor strengths, mental abilities and psychological preparations of the individual, so it is important to see how the player learns and how to find the guiding framework in order to develop and improve his skillful performance practice in football.

Technical testing is an essential and integrated part of the training process, which aims to improve the technical level of the talented player in the future, and based on the existing data, we had to develop a strategy on which to build the selection process. and the evaluation of players in a proper scientific way from various aspects, especially from the technical side.

Through the monitoring of the football match by the researchers, he noticed a weakness in the technical performance of the football players for the category of under13 years old. The researcher believes that one of the reasons for the weakness of the technical aspects of basis of young football players is the fact that coaches rely on traditional methods to select the player

without resorting to standardized scientific tests, and the valuable opinions of researchers in the theories and curricula of sports training and standards are one of the important basis for the planning, the follow up and the evaluation of the training programs in the field of football.

in light of all of the above, the following question should be asked:

-Is it possible to create a battery of skill tests that would help select football players under the age of 13 and assess their level during the sporting season?

Hypothesis

-Building a battery of skill tests suitable for football players under-13 years of age that can be used in the selection process.

-Determine technical tests to be used to evaluate players' level during the under-13 sports season.

Material and Methods

Study population and sample

The study population represents all football players in the province of El Tarf in the under-13 category.

Given the nature of the research and the methodology used, the researcher selected the research samples according to the objectives set for each stage of the research process, as follows:

-The exploratory sample consisted of 10 players, while the main sample was selected deliberately in accordance with the requirements and objectives of the research, consisting of 50 players under the age of 13 selected from the following clubs: -Ain Assel Sports Academy for Talents –Al Tarf Sports Academy -Zitouna School -Franz Fanon Ain Karma School -Amal Bouhadjar School.

Exploratory study

The researcher reviewed numerous scientific sources and references and previous studies. In agreement with the supervisor, a survey questionnaire was designed to identify the most important basic skills for football players under the age of 13.

The research variables included the following skill (technical) tests:

-Ball control test between 10 markers - Rolling test between posts - 30-metre running test with the ball - Handling skill test - Receiving and handling test - Dribbling test between 3 markers - Dribbling test between 8 markers

-Ball control test -Ball control from a bounce test -Ball control for 30 seconds (from a bounce) test -Ball scoring test - Shooting at goal test.

The exploratory experiment was conducted on 01/02/05/10/2024 on a sample of 10 football players under the age of 13. The skill tests were administered, and then the same tests were re-administered to the same sample individuals on 15/17/17/19/10/2024, where the researcher used the test-retest method to find the stability coefficients for the measurements and tests using Pearson's correlation coefficient, and to calculate the reliability coefficient through the reliability of the judges and self-reliability by calculating the square root of the stability coefficient.

After completing the exploratory experiment and confirming the stability and validity of the skill tests that were extracted, the main experiment was conducted during the period from 06/11/2024 to 30/11/2024 on the basic study sample, which was the under 13 age group.

Data collection tool

In order to obtain accurate data, the researcher used the following:

- Observation.
- Questionnaires.
- References and sources.
- Personal interviews with experts and specialists.
- Skill tests.

Scientific conditions of the tool

- **T*est stability***: Test stability was assessed using the test method and its application using Pearson's correlation coefficient to determine test stability.

- *Test validity*: The skill tests used in this study have a validity coefficient in many theoretical studies and scientific references and are mentioned in more than one reliable source. We also relied on the validity of the arbitrators and presented the skill tests to them.

Table 01. Arithmetic mean, standard deviation, stability, and internal consistency of skill tests for the under-13 age group

Variable Name	Test		Re-test		Stability coefficient	Validity Coefficient
	A M	S D	A M	S D		
Ball driving between 10 cones	21.052	1.864	20.979	1.588	.0984	0.991
Running with the ball between the posts	.21884	0.991	.21681	.1769	0.883	0.939
30meter ball run	.6911	0.567	.6907	.0578	1	1
Pass test	5.300	1.494	5.900	1.286	0.769	0.876
Pass and receive	6.200	1.813	6.400	1.505	0.731	0.854
Dribble between 3 plots	21.337	1.978	21.308	1.831	.0991	0.995
Dribble between 8 plots	.1866	.1284	18.692	.1213	0.992	0.995
Ball stop	6.200	1.988	6.600	1.118	1	1
Ball control	7.982	.2839	8.541	2.808	0.843	0.918
Juggling for 30 seconds	33.600	4.033	34.400	4.195	0.700	0.700
Ball shooting	14.100	.2558	13.800	2.936	0.677	0.822
Goal shoot	7.000	0.816	6.600	1.837	0.548	0.740

The table above shows that the stability coefficients for the skill tests used for the under-13 age group has high stability coefficients ranging from 0.548 to 1.00. while the internal consistency coefficients ranged between 0.740 and 1, all of which are significant at the 0.01 level.

After completing the exploratory experiment and ensuring the reliability and validity of the skills tests that were drawn, the main experiment was conducted after distributing the roles to the assistant work team by applying the skills tests to the main sample of the research.

Statistical tools:
we used the statistical package program (SPSS) in order to obtain:
- Arithmetic mean - Standard deviation - Pearson correlation coefficient - Factor analysis.

Results

Matrix of factors for skill tests for the under-13 age group after varimax rotation

During this stage, using varimax rotation, five factors were identified, with an explained variance of 62.719%. In accordance with the conditions for accepting factors and the construction criteria, which are to accept factors whose saturation is equal to or greater than 05 variables or more, in addition to the saturation value being equal to or greater than 0.30, two factors were accepted.

Table 2. shows the factors matrix for the skill tests for the category under 13 years old after orthogonal rotation.

Variables	Factors									
	01	R	02	R	03	R	04	R	05	R
C1	0.541	**3**	0.031		0.088		-0.175		0.111	
C2	-0.067		-0.025		0.859	**1**	-0.040		0.147	
C3	-0.133		0.140		0.018		0.758	**1**	-0,193	
C4	-0.095		0.662	**2**	0.067		0.140		0.265	
C5	-0.408		0.134		-0.018		-0.460	**3**	0.288	
C6	0.599	**2**	0.415		-0.167		0.128		0.407	
C7	0.116		-0.060		0.141		-0.694	**2**	0.230	
C8	0.732	**1**	0,004		0.103		-0.193		-0.025	
C9	0.040		0.102		0.797	**2**	0.209		-0.161	
C10	0.425		-0.546	**3**	0.117		-0.109		0.465	
C11	0.170		0.801	**1**	0.062		-0.161		-0.135	
C12	0.124		-0.036		0.006		0.039		-0.820	**1**

A. Interpretation of the first factor

It appears that the number of variables saturated on the first factor is 03 variables, representing 25% of the total number of variables, which is 12 variables. These saturations varied between positive and negative and were arranged in descending order according to their absolute values as follows:

1. Ball Stop test (C8): 0.732
2. Dribbling between 3 plots (C6): 0.599
3. Running with the ball between 10 cones :(C1): 0.541

The order of the saturations shows that the variables saturated on the first factor are a test specific to ball control (dribbling) skill at a rate of 33.33%. while the second is specific to dribbling skill at a rate of 50%, and the third is specific to running with the ball between 10 cones at a rate of 33.33%. The diversity of the saturations observed on this factor indicates that it is a categorical factor, with the explained variance of the first factor reaching 14.575%. It is also clear that this factor is a polar factor, as the tests were saturated with positive values, while others were saturated with negative values. This indicates that players who score high on the ball control and dribbling tests and low

on the 10-yard run test, and because the ball control test achieved the highest saturation, we can call this factor the ball control factor.

B- Interpretation of the second factor

It appears that the number of variables saturated on the second factor is 03 variables, representing 25% of the total number of variables, which is 12 variables, where these saturations varied between positive and negative.

They were arranged in descending order according to their absolute values as follows:

1. Ball chooting test (C11): 0.801
2. Ball stop test (C4): 0.662
3. Joggling for 30 seconds test (C10): -0.546

By arranging the saturations, it becomes clear that the variables saturated on the second factor are a test specific to ball scoring skills at a rate of 50%, while the second is specific to ball running skill at a rate of 33.33%, and the third is specific to joggling for 30 seconds at a rate of 33.33%. The diversity of saturations observed on this factor indicates that it is a categorical factor, with the explained variance of the second factor reaching 13.964%. It is also clear that this factor is a polar factor, as the tests were saturated with positive values, while others were saturated with negative values. This indicates that player who scores high on the ball scoring and handling tests and low on the joggling for 30 second test. Since the ball scoring test achieved the highest saturation, we can call this factor the scoring factor.

C- Interpretation of the third factor

It appears that the number of variables saturated on the third factor is two variables, representing 16.67% of the total number of variables, which is 12 variables. One of these saturations was positive, and they were arranged in descending order according to their absolute values as follows:

1. Running with the ball (C2): 0.859
2. Ball control test (C9): 0.797

By ranking the saturations, it is clear that the variables saturated on the third factor are a test specific to the skill of running with the ball with a percentage of 33.33%, while the second is specific to the skill of controlling the ball from bouncing with a percentage of 33.33%.

The diversity of the loadings observed on this factor indicates that it is a preliminary factor, with the explained variance of the third factor reaching 12.970%. Since the number of loadings on this factor did not reach the required level for acceptance, we disregarded it.

D- Interpretation of the fourth factor

It appears that the number of variables saturated on the fourth factor is 03 variables, representing 25% of the total number of variables, which is 12 variables, where these saturations varied between positive and negative and were arranged in descending order according to their absolute values as follows:

1. 30-metre ball run test (C12): 0.758
2. Dribbling test between 10 plots (C9): 0.694
3. Pass and receive test (C6): 0.460

The ranking of the correlations shows that the variables correlated with the third factor are the 30-metre ball running skill test (33.33%), while the second is specific to the dribbling skill test with a percentage of 50%, and the third is specific to the pass and receive skill with a percentage of 50%. The diversity of the observed saturations on this factor indicates that it is a categorical factor, with the explained variance of the fourth factor reaching 11.809%. It is also clear that this factor is a polar factor, as the tests were saturated with positive values, while others were saturated with negative values. This indicates that players who achieve high scores on the 30-metre ball running test and the dribbling test achieve low scores on the receiving and handling test. Since the 30-metre ball running test achieved the highest saturation, we can call this factor the ball running factor.

E. interpretation of the fifth factor

It is evident that the number of variables that loaded onto the fifth factor is one variable representing 8.33% of the total number of variables, which is 12, where it loaded negatively:

1. Goal shoot (C12): -0.820

The fifth factor was found to be associated with one test measuring the skill of shooting, with a percentage of 50%.

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The percentage of variance explained by the fifth factor was 9.401%, but as the number of loadings on this factor did not reach the required level for acceptance, it was disregarded.

Nomination of skill test battery units

Based on the results of the factor matrix for skill tests for the under-13 category, the test battery units were nominated according to the following table

Table 3. Show the nomination of skill tests battery units for the U13 category:

N	Test	Measurin Unit	Factor
01	Ball stop test	Degree	Skill of Ball control
02	Ball Shooting Test	Second	Skill of Ball driving
03	30-meter Ball run test	Degree	Skill of Shooting

Discussion

The results we have reached are as follows:
- For the first factor: The skill of stopping the ball is one of the most important and fundamental skills for a player. The more control a player has over the ball coming towards them, the more options they have on the field, and the more advanced they become, the greater their feel for the ball and the more control they have over it. There is an important rule in the world of football and sports that control over the ball means control over the opponent and the outcome of the match. Sometimes we focus too much on presenting the most beautiful individual and collective performances and creative images of the beauty of the beginning and end of skills, and we sometimes take a big step back in presenting the most beautiful individual and collective performances and creative images of the beauty of the beginning and

end of skills. the opponent and the results of the matches. Sometimes we take a big step in presenting the most beautiful individual and collective performances and the creative image of the beauty of the beginning and end of the players' multiple skills. Control and mastery of the ball during a match or sports competition, whether individual or collective, determines the aesthetics of the game and is a key factor in implementing strategy, gaining an advantage over the opponent in executing other skills, creating easy opportunities to score goals, and retaining possession of the ball for as long as possible during the competition (Ghazi & Hachem, 2013).
- For the second factor: the Shooting skill is an effective technique used by attacking players to overcome the numerical superiority of opposing defenders inside the penalty area. It is a powerful weapon

used to score goals against the opposing team, exploiting the player's physical, technical, psychological and mental abilities within the rules of the game. Shooting at goal currently takes up a large part of coaches' attention, and time is allocated for training, whether within the daily training unit or through additional individual assignments and training .

- As for the third factor, the skill of running with the ball emerged as one of the basic skills that all players, without exception, must master, whether they are defenders or attackers. This skill is performed in several different ways, which are chosen according to the nature of the situation and the tactics employed while performing the skill

The results of the current study confirmed that the proposed skill test battery is both valid and reliable for assessing the technical abilities of under-13 football players. This finding aligns with previous research emphasizing the importance of standardized testing in youth talent identification, where objectivity is essential to ensure fairness and accuracy in the selection process (Ghazi & Hachem, 2013).

One of the key contributions of this study is its focus on factorial construction, which allowed the identification of core skills that represent the foundation of performance in young football players. By isolating the most relevant technical components—such as ball control, dribbling, and shooting—the test battery provides coaches with precise tools that can guide both training and evaluation. This approach reduces the reliance on subjective judgment, which often leads to inconsistencies in player assessment.

Moreover, the study supports the integration of scientific methods into youth football training programs. By adopting valid and reliable test batteries, academies and clubs can ensure that player development is based on objective data rather than intuition. Such an approach not only enhances the accuracy of selection but

also contributes to more efficient training design, as coaches can target specific technical deficits revealed by the tests.

Finally, the practical implication of this research lies in providing an accessible and scientifically grounded tool that can be applied during different phases of the sporting season. The use of this test battery may assist coaches, trainers, and talent scouts in making more informed decisions, ultimately leading to improved standards in youth football development.

Conclusion

The present study aimed to construct and validate a battery of technical skill tests designed for under-13 football players. The findings demonstrated that the developed tests possess both validity and reliability, making them suitable instruments for evaluating the core technical abilities required in youth football, and within the scope of the research objectives, procedures followed, and statistical method used through the global analysis of skill tests applied to the under-13 age group of football players, the researcher was able to conclude that:

Skill variables:

Three (03) basic skill factors were identified based on skill tests for football players under the age of 13 in the province of El Tarf, namely:

- The first factor: ball control skill.
- The second factor: scoring skill.
- Fourth factor: Running with the ball.

By relying on objective measurements rather than subjective observation, this test battery offers coaches and practitioners a scientific tool to support player selection and monitor skill development across the season. The approach helps identify individual strengths and weaknesses, allowing for the design of targeted training programs that respond to the specific needs of young athletes.

The study also underlines the importance of integrating standardized assessments

into football academies and youth development programs. Such tools not only improve the accuracy of talent identification but also contribute to creating a more transparent and evidence-based pathway for nurturing future players. In conclusion, the proposed battery can be considered a valuable addition to the field of youth football training, providing a reliable framework for evaluation and selection. Further research is recommended to expand its application across larger samples and different age categories, ensuring broader generalization and continuous improvement.

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