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Modern technological techniques and their role in evaluating the physical performance during the sports season of footballers in Algeria. A field analytical study conducted on the first professional league clubs.

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Abstract:
The study aims to know the role played by modern technological techniques in evaluating the physical performance of footballers during the 2024-2025 sports season "Identifying modern technological techniques and their positive role in evaluating the maximum aerobic speed MAS, 30 m speed, and the explosive power CMJ SJ for players during the sports season".

The study was conducted on a random sample of 24 physical trainers active in the first professional league clubs. We adopted the analytical descriptive approach, and relied on the questionnaire to collect data, the results showed:

- *Modern technological techniques have a positive role in evaluating the physical performance of Algerian footballers during the* ***2024-2025*** *sports season.*
- *The majority of physical trainers use modern techniques to evaluate physical performance during the sports season (such as the application used in the* ***VAMEVAL Test*** *to evaluate the maximum aerobic speed* ***MAS****,* ***"My Sprint App"*** *to evaluate the* ***30 m speed*** *and* ***"My jump2 App"*** *to evaluate the explosive power of the lower limbs* ***CMJ SJ****).*

Keywords: *Modern technological techniques - Evaluation of physical performance.*

Les techniques technologiques modernes et leur rôle dans l'évaluation des performances physiques des footballeurs algériens pendant la saison sportive. Une étude analytique sur le terrain menée auprès des clubs de première division professionnelle.

Résumé :

L'étude vise à connaître le rôle joué par les techniques technologiques modernes dans l'évaluation des performances physiques des footballeurs au cours de la saison sportive 2024-2025 « Identification des techniques technologiques modernes et de leur rôle positif dans l'évaluation de la vitesse aérobie maximale (MAS), de la vitesse sur 30 m et de la puissance explosive (CMJ SJ) des joueurs au cours de la saison sportive ».

L'étude a été menée sur un échantillon aléatoire de 24 préparateurs physiques actifs dans les clubs de première division professionnelle. Nous avons adopté une approche analytique descriptive et nous nous sommes appuyés sur un questionnaire pour collecter les données. Les résultats ont montré que :

- *Les techniques technologiques modernes jouent un rôle positif dans l'évaluation des performances physiques des footballeurs algériens au cours de la saison sportive 2024-2025.*

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- *La majorité des préparateurs physiques utilisent des techniques modernes pour évaluer les performances physiques pendant la saison sportive (telles que l'application utilisée dans le test VAMEVAL pour évaluer la vitesse aérobie maximale MAS, « My Sprint App » pour évaluer la vitesse sur 30 m et « My jump2 App » pour évaluer la puissance explosive des membres inférieurs CMJ SJ).*

Mots-clés *: Techniques technologiques modernes - Évaluation des performances physiques.*

Introduction

Unlike other sports, football is characterized by its great popularity all over the world, as it combines physical readiness, technical skills and tactical maturity. It requires cooperation and coordination between players to achieve victory. The sports' training process in football is a long and arduous process that aims primarily to prepare players physically, technically, tactically and psychologically by using modern available techniques and technological means in order to reach the highest levels of performance. This can only be achieved through planning and preparing training programs based on modern methodological and scientific methods to raise the teams' physical readiness so that they are fully prepared for various official competitions (Abdul Qader Belkhair and others, 2024, p.126).

Modern technology has come to include a wide range of developments and innovations that affect our daily lives, and has also contributed to changing the way we think and interact with the world. It has invaded all fields and has become relied upon and its results in several areas, especially in football, where its use is closely linked to the players 'physical preparation and has been used in a striking way in preparing high-level players (Badr al-Din Dasa, 2014, p. 52).

In recent years, we have witnessed an unprecedented development of footballers at a high level in terms of physical fitness, which was confirmed by the statistics of the FIFA Physical Preparation Department through the use of technological means to evaluate physical, technical and tactical performance during international and continental competitions, highlighting the improvement in the results of

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high-level players in terms of the physical characteristics that dominate the game (maximum aerobic speed MAS, 30 m speed, explosive power).

As the international player today reaches between 60 and 70 matches per season, approximately 10 months of competition per season (matches with the club, the national team and friendly matches). The actual playing time has reached 60 minutes compared to what it used to be before, ranging between 50 and 55 minutes, the player, today, covers between 10 and 13 km as a total distance in the match, and a distance of 1.5 km to 2.5 km running at maximum intensity with the distance covered varying according to the playing positions: The central defender covers between 8 and 10 km and the wing defenders between 8-12 km, while the midfielder covers between 11 and 13 km and the attackers cover between 9 and 10 km. Also, during the match, the player covers between 120 and 600 m, i.e. between 50 and 70 sprints, between 15-30 jumps, 30 to 50 duels, and between 150 to 200 individual movements (FIFA. 2018.p01). Through these figures and statistics, if anything, indicate the development of high-level footballers in terms of physical performance, which prompted us to research the importance of using modern smart technological applications in determining and improving the physical performance of footballers by asking the following general question:

The General question:

Do modern technological techniques play a positive role in evaluating the footballers' physical performance during the sports season?

The Sub-questions:

- Do modern technological techniques play a positive role in evaluating the maximum aerobic speed MAS of players during the sports season?
- Do modern technological techniques play a positive role in evaluating the 30 m speed of players during the sports season?
- Do modern technological techniques play a positive role in evaluating the explosive strength CMJ SJ of players during the sports season?

General hypothesis:

Modern technological techniques have a positive role in evaluating the physical performance of footballers during the sports season.

Partial hypotheses:

- Modern technological techniques have a positive role in evaluating the maximum aerobic speed MAS of players during the sports season.
- Modern technological techniques have a positive role in evaluating the 30 m speed of players during the sports season.
- Modern technological techniques have a positive role in evaluating the explosive strength of the lower limbs CMJ SJ of players during the sports season.

Study objectives:

- Identifying modern technological techniques and their positive role in evaluating the maximum aerobic speed (MAS) of players during the sports season.

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- Identifying modern technological techniques and their positive role in evaluating the 30 m speed of players during the sports season.
- Identifying modern technological techniques and their role in evaluating the explosive power (CMJ SJ) of players during the sports season.

The study's Importance:

The importance of this study lies in shedding light on the modern technological techniques' uses and their role in evaluating physical performance during the sports season in football. As well as determining the extent to which these applications contribute to diagnosing and evaluating the players' physical readiness to provide the physical trainer with accurate information and data on the physical characteristics represented by "maximum aerobic speed MAS, 30m speed, explosive power" CMJ / SJ " in order to use them in the process of planning and programming training sessions.

This study also shows the type of smart technological applications used in measuring and evaluating the players' physical characteristics, which are My jump2, My Sprint.

Study terms :

1. Modern technological techniques :

Linguistical : It's a set of technological developments and innovations that work to improve our lives and change the way we live for the better.

Terminological : It includes devices, tools, machines, inventions, technologies, and all means resulting from the

practical application of scientific knowledge. Thus, technology is defined as the various types of means used to produce the necessary requirements for human comfort and the continuity of his existence (Badr Al-Din Dasa, 2014, p. 130).

Operational : It refers to the modern technological means, programs and applications used in the training process such as : mobile phone applications used in football " speed tests using My Sprint, explosive strength tests using the My jump2, and the application used in the maximum aerobic speed test MAS, specifically in the VAMEVAL test".

2. Physical performance evaluation:

Linguistical : It is determining the value of something or issuing a judgment on the value of things, individuals or subjects based on standards, levels or criteria to estimate this value. According to "Cardinal" evaluation is defined as "the process of determining the value of something based on measurement and testing.

Terminological : It is used for the purpose of improvement, modification or development that is built on the provisions of the evaluation process or accurate diagnosis of something or an effort (Scientific Nazir et al., 2022, p. 250).

Operational : In this study, we mean diagnosing or determining the role of modern technological means and techniques in improving the physical aspect of a footballer, relying on physical tests that touch on the most important physical characteristics that a footballer needs at a high level in order to improve them during the various stages of the training season to reach the required form on the day of the competition.

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3. Physical performance

Linguistical : It means physical preparation and readiness by possessing the necessary qualifications to compete physically, "Qasim Hassan Hussein" defines it as the efficiency and safety of the nervous, muscular, circulatory and respiratory systems, and internal organs in the face of the requirements of competition.

Terminological : "Basto Yasi Ahmed Abbas Saleh" defines it as the player's physical abilities, which is a translation of multiple foreign terms, including physical characteristics, motor characteristics, or motor abilities, which are terms that mean one concept, which is the physical aspect (Scientific Nazir et al., 2022, p. 250).

Operational : We mean the footballer's physical performance during matches including all physical characteristics: endurance, strength, speed, flexibility and agility. In this study we defined physical performance based on the player's performance in terms of the physical characteristics that dominate the game, represented by maximum aerobic speed MAS, 30m speed, explosive strength of the lower limbs CMJ SJ, as they are among the most important physical requirements for a footballer at a high level.

Previous studies:

After reviewing various previous studies close to the subject of our study, three studies were identified that focused on the effectiveness of smart technology applications and their impact on the physical preparation of players, which we summarized as follows:

The First Study: Ben Toumia Radwan et al., 2019.
Intitled: The phenomenon of using the Hy-Boxy training mask during the physical preparation stage in football.

The study aims to identify the reality of using the modern Hy-Boxy training mask in Algerian football fields at different levels and to know the extent to which physical trainers aspire to use modern technologies in the physical preparation of footballers. To achieve this, the study was conducted on a sample of 118 (physical instructors, technical trainers and academics) active at different levels and divisions for the 2017-2018 sports season. The researchers used the descriptive approach and relied on the questionnaire to reach the results. The latter emphasized the necessity of using modern methods, and this is what researchers will do in the future through an experimental study that may be the first of its kind in the fields of Algerian football. They also recommend the necessity of using modern techniques and methods in the field of football training to reach the highest levels of sporting achievement.

The second study: Adjel Toubal et al., 2023.
Intitled: Uses of artificial intelligence in the field of sports.

The study aims to clarify the uses of artificial intelligence applications in the field of sports, by reviewing, describing and analyzing some of the studies' results that dealt with models of applying artificial intelligence in sports sciences by relying on the descriptive approach using the questionnaire as a data collection tool. The results showed the contributions of artificial intelligence to sports training in general and physical preparation for various specializations

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in particular, especially physical preparation for footballers at the high level.

The third study: Tariq Khalfi and others, 2024.
Intitled: The effectiveness of smart technology applications in knowing the footballers' physical preparation level.

The study aims to identify the effectiveness of smart technology applications in knowing the footballers' physical preparation level (a field study using My jump2 application on senior footballers of Ain El-Beida Municipality Union team). The researchers used the descriptive approach on a sample of 21 players (seniors) who were deliberately selected and used a physical test using "MyJump2 application". The results were that there is an effectiveness of both the physical preparation period in improving the characteristic of strength characterized by speed and of smart technological applications.

Discussion of previous and similar studies:

All the studies presented before talk about one of our study's variables. Thus, they are tied to our study. Some talk about technological applications and physical preparation for footballers while the other talk about the uses of artificial intelligence in the field of sports. As for the approach, some used the descriptive approach and others used the experimental one. The tool varied between the questionnaire and field physical tests. While the results reached "the uses of modern technological applications play an important role in improving the physical performance of footballers." All these helped us in knowing how to analyze and interpret the

results, and determining the approach, sample, and means of collecting data. Our study came to be a complement to these studies by shedding light on "the uses of modern technological techniques in evaluating the physical performance during the sports season for footballers."

Exploratory study:
Through it, we aim to collect data on the subject of the study and information about the sample.

First: The researchers used the initial interview for the purpose of exploration, where it was conducted with a group of physical trainers and the aim was to collect data on the study's subject and information about the sample.

Second: The questionnaire, the researchers aim to build a questionnaire that includes "The importance of using modern technological techniques in evaluating physical performance during the sports season for footballers" distributing it in its first form to a sample of football physical trainers from the state of Algiers, estimated at 10 trainers, in order to confirm its validity and reliability.

The results of the survey study:

- Limiting the statistical community.
- Knowing the circumstances of the physical trainers.
- Taking a general picture of the questionnaire from its theoretical and applied point of view.
- Verifying the validity of the study questionnaire on the survey sample.

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Study approach:

In our study, we relied on the descriptive analytical approach, because we are in the process of collecting and analyzing data to highlight the effectiveness of using modern technological techniques in evaluating the physical performance during the sports season for footballers.

Study tools:

We found that the most appropriate tool for this study is the questionnaire, so we read and reviewed various questionnaires included in the previous studies available to us and also quoted some phrases from them, where we limited the questions and rephrased them in a way that serves this study. The questionnaire came in 4 sections :

Section One : It includes some personal information about the study sample, which included two (02) elements, represented by "years of service, educational qualification".

Section Two : The use of modern technological techniques has a positive role in evaluating the maximum aerobic speed MAS for footballers during the sports season, which contributed to its improvement from the point of view of physical trainers, and consists of (09) phrases, where the number of phrases was reduced to (06) after conducting an internal consistency validity test in the survey study.

Section Three: The use of modern technological techniques has a positive role in evaluating the 30m speed for footballers during the sports season, which contributed to its improvement from the point of view of physical trainers, and consists of (07) phrases, where the number of phrases was reduced to (04) after conducting an internal consistency validity test in the survey study.

Section Four : The use of modern technological techniques has a positive role in evaluating the explosive power CMJ / SJ of footballers during the sports season, which contributed to its improvement from the point of view of physical trainers. It consists of (09) statements.

The researchers relied in completing this questionnaire on the closed form that determines the possible responses to each question, i.e. on the "5-point Likert scale" and the physical therapists were asked to determine the extent of their agreement with these statements.

- Questionnaire scores: The questionnaire includes 05 scores, shown in the following table.

Table No. (01): "Questionnaire scores"

The Answer	**Always**	**Often**	**Sometimes**	**Rarely**	**Never**
Grades	5	4	3	2	1
Arithmetic Mean	5- 4.2 [	[4.2 - 3.4[	[3.4-2.6 [	[2.6-1.8[	[1.8-1[
Level	Very high	High	average	low	Very low

Psychometric properties of the questionnaire :

To know the psychometric properties, we carried out the process of emptying the corrected questionnaires, which were estimated at 24 questionnaires, and digitizing the data in the computer.

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Internal consistency validity of the paragraphs :

To know the consistency validity of the paragraphs with the total score of the scale in the current research community, Pearson's correlation coefficient was calculated between the scores of each paragraph with the total score of the questionnaire, and the following table shows the results of this procedure.

Table No. (02) : Shows the results of the correlation coefficients of the paragraphs with the total score of the questionnaire in the current research community **(n = 24)**

NO.	Paragraph	Correlation coefficient	Significance level
01	Modern technological techniques contribute to a good diagnosis of players' physical performance.	0.698	0.000
02	The use of modern technological techniques contributes to improving the players's physical aspect.	0.660	0.000
03	The use of technological techniques allows us to	0.430	0.036

	evaluate physical performance with high accuracy.		
04	The use of modern technological techniques is important in completing the training process.	0.534	0.000
05	Modern technological techniques give us more accurate data compared to traditional methods and tests.	0.536	0.000
06	The evaluation of the maximum aerobic speed (MAS) characteristic of footballers is due to the physical trainer's reliance on the VAMEVAL application in the test.	0.708	0.000
07	The evaluation of the 30m speed characteristic of footballers is due to the physical trainer's reliance on the My sprint application.	0.586	0.003

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08	The evaluation of the explosive strength characteristic of the lower limbs (SJ CMJ) in football is due to the physical trainer's reliance on Myjump2 application.	0.600	0.002
09	The use of modern technology contributes to enhancing positive interaction between players.	0.594	0.002
10	The use of modern technological techniques contributes to the accurate assessment of the player's physical characteristics.	0.684	0.000
11	Modern technological techniques contribute to the accurate assessment of the player's physical characteristics.	0.560	0.004
12	The use of technological applications helps in the data analysis process and provides us with more	0.442	0.031

	accurate information to determine strengths and weaknesses.		
13	The use of technological applications in the physical preparation helps in building and planning training loads.	0.664	0.000
14	The use of technological applications in the physical preparation helps in monitoring and controlling training loads.	0.780	0.000
15	The use of technological techniques and applications in the physical preparation helps in identifying the weaknesses of each player and thus respecting the principle of individual training.	0.653	0.001
16	The use of technological techniques and applications contributes to achieving a balance between work and	0.653	0.001

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	rest in a training session.		
17	Providing modern technology facilitates communication and interaction with experts and international physical trainers.	0.562	0.004
18	The use of modern technology facilitates the coach to monitor the physical condition of players during the transitional period between the end and beginning of each sports season.	0.531	0.008
19	The use of modern technology facilitates the analysis of official matches from a physical perspective and thus clarifies what effort is required in each physical characteristic.	0.648	0.000

Table No. (02) notes that the correlation coefficients of all paragraphs are statistically significant at a significance level

of (0.01), i.e. that all paragraphs have a strong internal sincerity.

- **Questionnaire stability coefficients:**

To determine the total score stability of the questionnaire in its final form consisting of (19) paragraphs in the current research community, we applied the split-half equation and the Krombach method to the total sample data estimated at (24) physical trainers, and the results were as shown in the following table:

Table No. (03): Shows the stability coefficients' results for the sub-axes and the total score of the questionnaire in the research community (n=24).

Questionnaire axes	Number of statements	Half-split	Reliability coefficient	Correlation coefficient
Modern technological techniques have a positive role in evaluating the maximum aerobic speed MAS of players during the sports season.	06	03 phrases 03 phrases	0.619	0.886
Modern technological techniques have	04	02 phrases	0.825 0.560	0.642

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a positive role in evaluating the 30m speed of players during the sports season.		02 phrases		
Modern technological techniques have a positive role in evaluating the explosive power CMJ SJ of players during the sports season.	09	05 phrases 04 phrases	0.809 0.767	0.657
The use of modern technological techniques has a positive role in evaluating the physical performance of footballers during the sports season.	19	10 phrases 09 phrases	0.823 0.821	0.941

From the table, we notice that the correlation coefficient is high for each axis of the questionnaire, ranging between 0.642-0.941. Each half of the questionnaire axes is also characterized by high stability - Kronbach's α stability coefficient:

The following table shows the results reached for the questionnaire axes using Kronbach's α stability coefficient.

Table No. (04): Shows the results of Kronbach's α stability coefficients

Questionnaire axes	Kronbach α
Modern technological techniques have a positive role in evaluating the maximum aerobic speed MAS of players during the sports season.	0.820
Modern technological techniques have a positive role in evaluating the 30m speed of players during the sports season.	0.747
Modern technological techniques have a positive role in evaluating the explosive power CMJ SJ of players during the sports season.	0.838
The use of modern technological techniques has a positive role in evaluating the physical performance of footballers during the sports season.	0.908

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Table No. (04) shows that all stability coefficients are high and statistically significant at the significance level of 0.05, and that the value of these coefficients differed from one axis to another, where its maximum limit was 0.838, and its minimum limit was 0.747. The overall stability coefficient of the study questionnaire reached 0.908, which is a high stability coefficient and statistically significant at the significance level of 0.05, which indicates the possibility of stability of the results that will be obtained using the questionnaire.

Based on the results obtained using "Split-half and Cronbach's α reliability coefficient" and referring to Tables NO. 03 and 04 : the questionnaire can be considered to be highly reliable and can therefore be used in our study.

Study community:

It represents the physical trainers of the first professional league clubs.

Study sample:

It was random, as the total sample amounted to 24 physical trainers active with the clubs of the first professional league. This method gives all members of the community the same opportunity to be part of the study sample. This is what gives the study tool an objective character.

- **Study limits:**
- **Human limits:** Our study included physical trainers from Algiers.

- **Time limits:** This study was conducted during the 2024-2025 sports season. We started this study from May to June 15, 2024. After the process of distributing and then collecting the questionnaire forms and correcting them, we started to digitize data onto the computer, then analyze them and sort the results.
- **Spatial Limits:** This study was applied at the level of Algiers State. We used 34 questionnaires, 10 of which were for the exploratory study and 24 for the field study. It was directed to active physical trainers of the first professional league.

Study tools and statistical processing:

- Statistical analysis tools: The researcher used the statistical program called the Statistical Package for Social Sciences, twenty-second edition (spss22), and relied on the following statistical techniques:

- Percentages and frequencies to describe the sample.
- Arithmetic mean to measure the degree of centralization of answers.
- Standard deviation to measure the degree of agreement and non-dispersion of answers.
- Kronbach's coefficient of reliability to determine the reliability of the questionnaire items.
- T-test to find the differences between the averages of two categories.
- One Way Anova to find the differences between the averages of several categories.
- Spearman Brown correlation coefficient to investigate the relationship between the study variables.

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Results Display and Analysis:

1- Testing the normal distribution of data:

To find out whether the data in hands takes the form of a normal distribution, we tested it using the natural data distribution test (Kolmogorov-Smirnov) and Shapiro-Wilk) for the study sample estimated at 24.

Table No. (05) shows the results of the natural data distribution test:

The Variable	Sample size	(Kolmogorov-Smirnov)			((Shapiro- Wilk		
		Test statistical value	Degrees of freedom	Significance level	Test statistical value	Degrees of freedom	Significance level
Modern technological techniques play a positive role in evaluating the physical performance of footballers during the sports season.	24	0.126	24	0.200	0.931	24	0.103

Table (05) shows that the probability value corresponding to the Kolmogorov-Smirnov normal distribution test result for the questionnaire has the highest significance level (α=0.05) at a degree of freedom estimated at 24. These are statistically significant results, meaning that the null hypothesis, which states that the data follow a normal distribution is accepted and the alternative hypothesis, which states that the data do not follow a normal distribution is rejected.

Based on these results, the type of tests that verify the hypotheses are selected. Therefore, we will use parametric statistical tests.

The relationship between the questionnaire and its three axes:

We used the Pearson correlation coefficient to determine the bivariate relationship between the questionnaire and its three axes.

The test results are shown in the following Table (06):

Table (06): Shows the results of the correlation between the questionnaire and its three components at a statistical significance level estimated at α=0.01

The Variables		1st Axis	2nd Axis	3rd Axis	The Questionnaire
1st Axis	Pearson's correlation coefficient value	1.000	0.579*	0.654*	0.855*

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	Sig value		0 .003	0.001	0.000
	Sample size	24	24	24	24
2nd Axis	Pearson's correlation coefficient value	0.579**	1 .000**	0.679**	0.866**
	Sig value	0.003		0.000	0.000
	Sample size	24	24	24	24
3rd Axis	Pearson's correlation coefficient value	0.654**	0.697**	1.000**	0.890**
	Sig value	0.001	0.000		0.000
	Sample size	24	24	24	24
The Questionnaire	Pearson's correlation coefficient value	0.855**	0.866**	0.890**	**1.000
	Sig value	0.000	0.000	0.000	0.000
	Sample size	24	24	24	24

****The correlation is statistically significant at the 0.01 level (two-way)**

It is noted from the results of the table above that the Pearson correlation coefficient values are greater than 0.800, with a sig value less than 0.01 at a significance level of 0.01. These are statistically significant results between the total score of the questionnaire and its three axes. This means that there is a positive direct relationship between the total score of the questionnaire and its three axes, meaning that the questionnaire is characterized by a high degree of accuracy and consistency with its three axes.

Results Display and analysis:

The first hypothesis: which states that "modern technological techniques have a positive role in evaluating the maximum air speed MAS of players during the sports season." To verify the validity of the hypothesis, the researchers used the (T-Test) for the single sample to find the differences between the spoken average and the arithmetic average of the research sample, in order to know the degree of acceptance and satisfaction regarding the first axis of the questionnaire. The results of the test are shown in the following table (07):

Table No. (07) shows the results of the (T-Test) for the single sample (the first axis of the questionnaire):

Variables	N	Spoken mean	Arithmetic mean	T-value	Degree of freedom	Significance level	Level (judgment)

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Modern technological techniques play a positive role in assessing players' maximum aerobic speed (MAS) during a sports season.	24	03	4.1944	8.983	23	0.000	High

It is noted from the results of Table No. (07) that the arithmetic mean of the research sample reached 4.1944, equivalent to (25.1664), while the reported mean is 0.3, equivalent to (18) with a difference of 7 points.

The calculated (T) value reached 8.983, which is significant at the 0.000 level and with an estimated degree of freedom of 23.

The arithmetic mean is completely greater than 3.4 and less than 4.2, which indicates that the first axis of the questionnaire is characterized by acceptance, presentation, analysis, and satisfaction by the sample members at a high level. meaning that modern technological techniques have a positive role in evaluating the maximum aerobic speed (MAS) of footballers during the sports season. Accordingly, this result achieves the first hypothesis of the study,which is similar to the findings of the study of Khoja Bassem et al. (2019 AD, p. 148) that the use of modern technological techniques is more effective and accurate in evaluating and diagnosing the physical characteristics of footballers. This was reinforced by the results of a study by Tariq Khilfi et al.

(2024, p. 931), highlighting the effectiveness and high accuracy of smart technology applications in identifying and determining the physical level of footballers.

Based on the above, we conclude that the use of modern technologies and applications plays a positive and effective role in diagnosing the physical condition of footballers by assessing their aerobic capacity and accurate MAS (maximum aerobic velocity) test results. This facilitates the work of physical trainers in programming and planning training loads based on highly accurate data. Therefore, we conclude that the first axis of the questionnaire was met with acceptance and satisfaction from the study sample, and thus the hypothesis was accepted.

Second Hypothesis Results:

Which states that "modern technological techniques have a positive role in assessing the 30m speed of players during the sports season." To verify the validity of the hypothesis, the researchers used a single-sample T-test to find differences between the reported mean and the arithmetic mean of the research sample. This was to determine the degree of acceptance and satisfaction with the questionnaire's second axis. The test results are shown in Table (08) below:

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Table No. (08) shows the results of the single-sample T-test (the second axis of the questionnaire):

Variables	N	Spoken mean	Arithmetic mean	T-value	Degree of freedom	Significance level	Level (judgment)
Modern technological techniques play a positive role in assessing the 30m speed of players during the sports season.	24	03	4.0521	7.769	23	0.000	High

It is noted from the results of Table No. (08) that the arithmetic mean of the research sample reached 4.0521, which is equivalent to (16.2084) while the reported mean is 03, which is equivalent to (12) with a difference of 4 degrees. The calculated T-value reached 7.769 which is significant at the 0.000 level with an estimated degree of freedom of 23. The arithmetic mean is completely greater than 3.4 and less than 4.2 which indicates that the second axis of the questionnaire is characterized by acceptance and satisfaction by the sample members at a high level, meaning that modern technological techniques have a positive role in

evaluating the 30m speed for players during the sports season.

Accordingly, this result achieves the second hypothesis of the study, which is what the results of the study (Qarumi Al-Hussein and others, 2021 AD, p. 105) reached, that the more modern technological techniques are used, the quality of the training process as a whole increases, and this is what (Khadoum Abdel Fattah et al. (2023, p. 801) study results' recommended " the necessity of using smart technology applications facilitate the work of physical trainers and coaches, and also enhance the effectiveness and accuracy of footballers' physical performance".

Based on the above, we conclude that the use of modern technology applications plays a positive and effective role in diagnosing the physical condition of footballers by assessing a player's ability to run short, fast distances, as determined by the results of 30m speed tests. This facilitates the work of specialists. Therefore, we conclude from the questionnaire's second axis that it was met with acceptance and satisfaction from the study sample, and thus the hypothesis was accepted.

Third Hypothesis Presentation and Results' Analysis :

Which states that "modern technological techniques have a positive role in assessing the explosive strength of the lower limbs (CMJ SJ) of players during the sports season." To verify the validity of the hypothesis, the researcher used a single-sample T-test to find differences between the reported mean and the arithmetic mean of the research sample, in order to determine the degree of acceptance and satisfaction regarding the third axis of the questionnaire.
The test results are shown in the following Table (09):

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Table No. (09) shows the results of the single-sample T-test (the third axis of the questionnaire):

Variables	N	Spoken mean	Arithmetic mean	T-value	Degree of freedom	Significance level	Level (judgment)
Modern technological techniques have a positive role in assessing the explosive strength of the lower limbs (CMJ SJ) of players during the sports season.	24	03	4.2361	9.553	23	0.000	Very High

It is noted from the results of Table No. (09) that the arithmetic mean of the study sample reached 4.2361 which is equivalent to (38.1249) while the reported mean is 03 which is equivalent to (27) with a difference of 11 degrees. The calculated T-value reached 9.553 which is significant at the 0.000 level and with a degree of freedom estimated at 23. The arithmetic mean is completely greater than 4.2 and less than 5.0 which indicates that the third axis of the questionnaire is characterized by acceptance and satisfaction

from the sample members at a very high level, meaning that modern technological techniques have a positive role in evaluating the explosive strength of the lower limbs CMJ SJ for players during the sports season. Accordingly, this result achieves the third hypothesis of the study, which is what the results of the study (Khoja Basem and others, 2023, p. 404) reached "the use of modern technology with the JUMP MD device is more effective in evaluating the explosive strength of the lower limbs of footballers compared to traditional tests".

Other studies' results in various disciplines support this argument, highlighting that the use of the My Jump 2 app to assess explosive strength is more accurate and effective than traditional tests. Perhaps the most important of these is the study by Dennis Sora Reis, 2023, p. 66, which concluded that this app is more accurate in estimating the jump height of good players. This is similar to the results of a study by Liu Vian, 2024, p. 106, which also revealed the reliability and validity of the My Jump 2 app in assessing the landing jump, vertical jump, and jump height of the Reactive Power Index (RPI) of underwater volleyball players. This, if anything, indicates that this modern technological application has proven its credibility in football in particular and in various other sports. Therefore, we conclude that the use of modern technological applications plays a positive and effective role in assessing the explosive strength of footballers, which they need in competition through various aerial and ground duels and shooting. Thus, the third axis of the questionnaire was characterised by acceptance and satisfaction from the study sample, and thus the hypothesis was accepted.

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The General Hypothesis Presentation results' analysis:

Which states that "modern technological techniques have a positive role in evaluating the physical performance of footballers during the sports season."

To verify the validity of the general hypothesis, the researchers used a single-sample T-test to find differences between the reported mean and the arithmetic mean of the research sample, to determine the degree of acceptance and satisfaction with the overall questionnaire score. The test results are shown in Table (10) below:

Table (10) shows the results of the single-sample T-test (questionnaire):

Variables	N	Spoken mean	Arithmetic mean	T-value	Degree of freedom	Significance level	Level (judgment)
Modern technological techniques play a positive role in evaluating the physical performance of footballers during the sports season.	24	03	4.1609	10.061	23	0.000	High

The results of Table No. (10) shows that the arithmetic mean of the research sample reached 4.1609 which is equivalent to (79.0571) while the reported mean is 03 which is equivalent to 57 with a difference of 22 degrees. The calculated T-value reached 10.061 which is significant at the 0.000 level and with a degree of freedom estimated at 23. The arithmetic mean is completely greater than 3.4 and less than 4.2 which indicates that the questionnaire is characterized by acceptance and satisfaction by the sample members at a high level which means that modern technological techniques have a positive role in evaluating the physical performance of footballers during the sports season. This is what Mahmoud Mahfouzy (2023, p. 65) study concluded, highlighting that technology plays a significant role in developing the training process in general, and the physical aspect in particular. The study of (Khoja Bassem et al., 2018, p. 298) confirmed that the use of modern technology in assessment and measurement is important in the training process. Through their study, they demonstrated the effectiveness of the JUMP-MD device in assessing the explosive strength of footballers, and that it has a positive role in assessing this very important physical characteristic compared to traditional tests used previously.

The results of a study by Khoja Bassem (2022, p. 139) also reinforced the importance of using modern technologies in assessment, concluding that they are more effective in assessing the explosive strength of the lower and upper limbs of footballers compared to traditional tests. Therefore, we conclude that the questionnaire was well-received and satisfactory by the study sample, and thus the hypothesis was accepted.

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Conclusions:

1) Modern technological techniques have a positive role in assessing players' maximum aerobic speed (MAS) during the sports season.
2) Modern technological techniques have a positive role in assessing players' 30m speed during the sports season.
3) The improvement of modern technological techniques has a positive role in assessing players' explosive strength of the lower limbs (CMJ/SJ) during the sports season.
4) Modern technological techniques have a positive role in assessing the physical performance of footballers during the sports season.

Suggestions:

1) Physical trainers should use modern technological techniques and applications in physical training in football.
2) Coaches and physical trainers should receive adequate training in modern electronic applications to enable them to assess the physical performance of footballers.
3) Work to acquire and provide modern, new, and accurate electronic devices, applications, and tools to coaches, sports clubs, and sports specialists, given their importance in providing accurate results when evaluating performance.

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