ISSN: 2392-5442 ESSN : 2602-540X		Sport system journal
V/13 N/02 Year/2026		International scientific journal published by: ZianeAchour –Djelfa- Algeria
P 537 - 554		Received: 2026-06-13A ccepted: 2026-07-14

The Reality of Training Load Planning Among Under-20 Football Coaches A Field Study of Elite Division Clubs of the Batna Regional Football League

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Abstract:
Training load planning is considered one of the most important pillars of modern sports training, as it represents the organized process through which the various components of the training load are distributed and structured according to specific objectives and carefully designed time phases.
The aim of this study was to identify the reality of training load planning among football coaches of the Under-20 category. The study population consisted of coaches of the Under-20 teams competing in the Batna Regional Football League (Elite Division), totaling 14 coaches. A purposive sample of 10 coaches representing the original population was selected for the study.
The findings revealed that the current state of training load planning among Under-20 football coaches reflects an acceptable level of scientific application. However, it still requires further development as well as stronger scientific and methodological supervision to ensure the standardization of training practices and to enhance them toward more professional and effective levels, in line with the demands of modern football and the principles of long-term athletic development.
Keywords: Training Load; Under-20; Planning; Football Coaches.

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1- INTRODUCTION:

Football is one of the most popular, greatest, and most beloved sporting activities for millions of children and young people around the world, both among those who practice it and those who follow it in stadiums, on television, radio, newspapers, magazines, and books devoted to this globally celebrated sport.The simplicity of football and the ease with which it can be played by both children and adults are among the main reasons for its widespread popularity. Football is a team sport played between two teams, each composed of eleven players including the goalkeeper. The players attempt to move a single ball among themselves over ninety minutes, divided into two halves of 45 minutes each, separated by a short break.

The referee, assisted by two linesmen, adds stoppage time to each half when necessary. The objective of the game is for each team to maintain possession, move effectively, and use all physical, technical, and tactical abilities to overcome the opposing team and score the greatest number of goals.

Football planning is considered one of the most important organizational processes carried out by the coach, as it aims to define training objectives and design appropriate programs to achieve them according to well-studied time phases. Well-planned and carefully organized work can only lead to desirable outcomes. Therefore, good sports performance requires prior scientific and systematic planning implemented by the coach (Mazari & Dahmani, 2020, p. 51). Planning in football is not limited to the preparation of training sessions; it also includes the organization of the training load and its balanced distribution in a manner that takes into account players' abilities, especially in youth categories that require special attention due to their stages of growth and development,At present, it has become necessary for coaches to rely on scientific planning based on clear principles, such as determining intensity, volume, and density, while taking into consideration the principles of progression and continuity, in addition to controlling rest and recovery periods. Good planning also helps prevent many problems, such as physical fatigue, injuries, and declines in performance level, making it an effective tool for achieving the best possible results,If the training load is appropriate to the athlete's abilities and capacities, the intended objective is achieved. However, if the load is too low, physiological adaptation will not occur, whereas if the load is excessive, negative effects will appear not only on the athlete's performance level but also on his health condition (Sahnoun & Charbi, 2023, p. 512).

On the other hand, the evaluation process is considered one of the scientific foundations that enables us to identify the course of the training process and the true level of the players (Derbal Fathi, 2016, p. 273) because the Planning in football is integrated with all components of the training process and contributes to the holistic development of the player. The success of any training program depends on the accuracy and flexibility of planning and its ability to adapt to changing conditions related to the team or the surrounding environment, Despite the importance of planning, field reality—particularly in some clubs and youth categories—indicates differences in its application among coaches. Some continue to rely on traditional approaches lacking scientific organization, whereas others use modern methods and technologies. This variation may be attributed to insufficient scientific training, limited resources, and the absence of modern monitoring tools.

In this context, there is a need to study the reality of planning in football, particularly training load planning. Training load planning involves controlling the key elements of load:

training volume, which refers to the amount of work performed; training intensity, which indicates the level of effort exerted; and training density, which represents the balance between work and rest periods. These components help coaches regulate and optimize the training process .Precise control of these components is essential for achieving the required physical and physiological adaptations and for improving athletic performance.

Accordingly, this study seeks to shed light on the reality of training load planning among football coaches by analyzing their practices and identifying the main difficulties they face, with the aim of proposing scientific recommendations to improve the training process and raise the level of football, especially in elite youth categories.

2-Main Research Question:

What is the reality of training load planning among Under-20 football coaches?

3-Sub-Questions

3-1 Do coaches rely on scientific planning for training load?

3-2 Do coaches effectively control training intensity and volume?

4-General Hypothesis:

There is a clear variation in the level of training load planning among Under-20 football coaches depending on their experience and academic background.

5-Specific Hypotheses

5-1 Coaches rely on systematic scientific planning for training load.

5-2 Coaches control training intensity and volume.

6- Research Objectives:

- ✓ To identify the reality of training load planning among Under-20 football coaches.
- ✓ To determine the importance of scientific planning of training load in football.
- ✓ To assess coaches' ability to control training intensity and volume.

7- Importance of the Study:

This study is important because it:

- ✓ Enriches knowledge in sports training by focusing on Under-20 coaches, a category that has received limited research attention.
- ✓ Diagnoses strengths and weaknesses in coaches' planning practices.
- ✓ Contributes to improving youth player development.
- ✓ Guides sports organizations and clubs to invest in coach education.
- ✓ Opens the door to future studies examining the relationship between planning, performance, and injuries.

8- Research Terminology:

8-1- Sports Planningm:

- ✓ Harre (1977): A long-term strategic process based on scientific principles and practical experience.
- ✓ Martin (1980): A predictive process involving the organization and documentation of training components to achieve a specific objective.
- ✓ Stariska (1988): A long-term educational and organizational process aimed at achieving specific purposes.

8-2- Training Load:

- ✓ **Linguistically**: Refers to burden or effort.

- ✓ **Terminologically**: The physical and psychological effort imposed on the body, leading to fatigue, recovery, and ultimately supercompensation.

- ✓ **Operational Definition**: The amount of work imposed on the body involving various forms such as strength, speed, endurance, and power.

8-3 Under-20 Category:

A sports age category including players aged 18–19 years, representing a transitional stage between youth and senior categories. In this study, it refers to all officially registered Under-20 football players in Batna Regional League clubs during the 2025–2026 season.

9- Previous and Similar Studies:

9-1 Radouane Boubaker Study (2017):

A doctoral thesis at the University of Algiers 3 entitled Evaluation of the Training Load During Training Sessions Among Algerian Professional Football Clubs. The study aimed to use a tool that allows determining the quantity of training loads carried out by Algerian professional football clubs. The researcher used the descriptive-analytical method. The research population consisted of players of the Algerian First Professional League, whose total number was 480 players, while the research sample consisted of 20 players from two different clubs. The researcher concluded that the daily and weekly training loads among professional football players were very weak compared with the values that these clubs should have.

9-2 Mahfoudhi Mahmoud Study (2023):

Under the title Measuring the Training Load to Determine the Level of Fatigue Among Football Players, an article published in the journal Excellence in Sciences and Techniques of Physical and Sports Activities. The study aimed to measure the training load as well as determine the level of fatigue among junior football players. The researcher used the descriptive method appropriate to the nature of this research, and it was hypothesized that it is possible to quantitatively measure the training load using Foster's Rating of Perceived Exertion method and

determine the level of fatigue among football players. For this purpose, the study was conducted on a sample of 16 junior players playing for ES Souk Ahras football team. The study concluded that it is possible to quantitatively measure the training load using Foster's Rating of Perceived Exertion method and determine the level of fatigue among football players. The session Rating of Perceived Exertion method also contributes to achieving optimal and appropriate training for junior football players.

9-3 Kadem and Derouiche Study (2023):

Under the title Foster's Scale (RPE) for Monitoring Training Load and Detecting Overtraining and Fatigue in Athletes, an article published in Challenge Journal. The study aimed to monitor various training variables through the regulation and follow-up of training load based on the self-load management questionnaire: Foster's Rating of Perceived Exertion (RPE) method, in order to detect fatigue and overtraining. The descriptive method was adopted in this study. The study sample consisted of 15 Cambo wrestlers from Izourane Martial Arts Club in Oum El Bouaghi Province and 19 football players from Amal Sportif Club of Ain Beida within the Inter-Regional Football Division in Oum El Bouaghi. This was done through daily and weekly monitoring of training load using the (RPE) questionnaire, which provided precise numerical results to the study questions. The study concluded that overtraining can be calculated when athletes individually exceed identifiable training thresholds related to exercise monotony (IM), training strain (IC), performance capacity (IF), and the Acute:Chronic Workload Ratio (ACWR). This model is simple and effective and is considered an effective tool for regulating and monitoring training load and detecting fatigue, overtraining, and injuries in athletes.

✓ **Commentary on Previous Studies:**

Through the analysis of previous studies, it becomes clear that training load planning in football suffers from some shortcomings, as some studies have shown the existence of weakness in training loads and their lack of conformity with scientific standards, even at the level of professional clubs. In contrast, other studies confirmed the possibility of controlling and regulating the training load by using modern scientific tools such as the Rating of Perceived Exertion (RPE) method, which allows the measurement of training intensity, the monitoring of fatigue level, and the detection of overtraining. These studies also highlighted the importance of continuous monitoring of the training load through precise scientific indicators, which indicates that effective planning is not limited only to

programming, but also includes evaluation and continuous follow-up. Accordingly, the importance of studying the reality of training load planning among Under-20 football coaches emerges in order to determine the extent to which they rely on these modern scientific methods.

II. Practical Framework

1. Methodological Procedures Followed

Introduction:

After our attempt to cover the theoretical aspects of the research, we tried in this part to address the subject from the practical aspect by conducting a field study through a questionnaire directed to the coaches. In this field study, we tested the hypotheses that we had formulated in order to confirm or reject them. Thus, we have covered all aspects of the subject.

1.1 Pilot Study:

To ensure the proper conduct of our research, we carried out a pilot study. Its objective was to identify the difficulties faced by the coaches in understanding the questions of the questionnaire form and to determine the validity and effectiveness of the latter.

1.2 Method Used:

The descriptive method was used because it is appropriate to the nature of our study. The descriptive method is defined as a method for studying phenomena or scientific problems by carrying out a scientific description, and then reaching logical interpretations supported by evidence and proof that give the researcher the ability to establish specific frameworks for the problem. This method is used in determining the research results.

1.3 Study Population:

In our research, we chose the population to consist of Under-20 coaches of the Batna Regional Football League (Elite Division), whose number reached 14 coaches.

1.4 Study Sample:

The sample is a part of the study population from which field data are collected, and it is considered a part of the whole, meaning that a group of individuals is taken from the population provided that it is representative of the research population (Rachid Zerouati, 2007, p. 334).

A total of 10 coaches were selected purposively from among those representing the original population as the sample for our research.

The descriptive method was used because it is suitable for studying and interpreting phenomena scientifically.

1.5 Study Variables

1.5.1 Independent Variable:

It is the relationship between cause and effect, and it is the factor whose extent of influence on the phenomenon under study the researcher seeks to know. In our research, it is represented by training load planning (Allawi & Kamel Ratib, 1999, p. 219).

1.5.2 Dependent Variable:

It is the variable that explains the outcome or aspects because it determines the phenomenon that we are trying to explain. These are the factors or phenomena that the researcher seeks to measure, and they are affected by the independent variable. In our research, it is represented by Under-20 football coaches (Mohamed Allawi, 2001, p. 117).

1.6 Study Fields

1.6.1 Human Field:

The research sample in the survey study included the distribution of the questionnaire to Under-20 coaches of the Batna Regional League (Elite Division), whose number reached 14 coaches.

1.6.2 Spatial Field:

The questionnaire was distributed in the provinces in which the coaches reside.

1.6.3 Temporal Field:

The survey study of the questionnaire was conducted during the period extending from September to December 2025.

1.7 Study Tools:

We used the following tools in this study:

- ✓ References and sources in Arabic and foreign languages.
- ✓ Previous and similar studies.

- ✓ The questionnaire form for survey studies.
- ✓ Statistical methods represented by percentages and the Chi-square (χ^2) test.

1.8 Scientific Bases of the Study Tools:

Validity:

The validity of the questionnaire means its ability to measure what it was designed for (Qais Naji, 1984, p. 87). We addressed validity in this research by relying on face validity, which is based on observation and taking the opinions of some specialists in this field, where it was found that the questionnaire actually measures what it was designed for.

Reliability:

It refers to the ability of the instrument to give the same results if it is reapplied to the same individuals under the same conditions (Nizar Al-Talib & Al-Samarrai, 1989, p. 134).

2- Presentation, Analysis, Interpretation, and Discussion of the Results:

2-1 Presentation and Analysis of the Results in Light of the Hypotheses:

2-1-1 First Hypothesis: Coaches rely on a systematic scientific planning of training load.

Table No. (01): Statistical analysis of the questionnaire results related to the first hypothesis.

Statements	Responses	Frequencies	Percentage	Calculated χ^2	Tabulated χ^2	Significance Level	Statistical Significance
Statement One	Yes	09	90 %	6.4	3.84	0.05	Significant
	No	01	10 %				
Statement Two	Yes	07	70 %	1.6	3.84	0.05	Not Significant
	No	03	30 %				
S	Yes	07	70	1.6	3.8	0.0	N

tatement Three			%		4	5	ot Significant
	No	03	30 %				
Statement Four	Yes	08	80 %	3.6	3.84	0.05	Not Significant
	No	02	20 %				
Statement Five	Yes	06	60 %	0.4	3.84	0.05	Not Significant
	No	04	40 %				
Statement Six	Yes	10	100 %	10.0	3.84	0.05	Significant
	No	00	0%				
Statement Seven	Yes	10	100 %	10.0	3.84	0.05	Significant
	No	00	0%				
Statement Eight	Yes	06	60 %	0.4	3.84	0.05	Not Significant
	No	04	40 %				
Statement Nine	Yes	10	100 %	10.0	3.84	0.05	Significant
	No	00	0%				

Within the framework of testing the first hypothesis, which states that coaches rely on a regular scientific planning of the training load, the questionnaire results were analyzed through the statistical table that shows the distribution of the sample members' responses between "Yes" and "No", with the calculation of frequencies and percentages and the use of the Chi-square (χ^2) test at a significance level of 0.05.

The results showed that the majority of the sample members tend to confirm this hypothesis, as the first statement recorded a high approval rate estimated at 90%, which reflects a near consensus on the adoption of scientific planning. The second and third statements also showed approval rates of 70%, which indicates a considerable positive tendency despite the existence of some differences in opinions. The fourth statement recorded an approval rate of 80%, further

confirming this trend. In contrast, it was observed that some statements, such as the fifth and eighth, recorded a lower approval rate (60%), which reflects a certain variation in the respondents' viewpoints. This may indicate differences in the degree of application of scientific planning among coaches or disparities in resources and experience. As for the sixth, seventh, and ninth statements, they achieved an approval rate of 100%, which indicates a complete consensus among the sample members regarding some aspects related to the scientific planning of the training load.

Based on the Chi-square (χ^2) test, where the calculated value reached 3.84 at a significance level of 0.05, which is equal to the tabulated value, the results are considered at the threshold of statistical significance. This means that some differences can be considered statistically significant, while others remain non-significant.

Accordingly, it can be concluded that the study results largely support the first hypothesis, as it becomes clear that coaches do indeed rely on a regular scientific planning of the training load. However, this reliance differs in degree from one coach to another, which explains the presence of some variation in the responses.

2-1-2 The second hypothesis: Coaches control the intensity and volume of training.

Table No. (02): Statistical analysis of the questionnaire results related to the second hypothesis.

Statements	Responses	Frequencies	Percentage	Calculated χ^2	Tabulated χ^2	Significance Level	tatistical Significance
Statement One	Yes	07	70 %	1.6	3.84	0.05	ot

	No	03	30 %				Significant
Statement Two	Yes	09	90 %	6.4	3.84	0.05	
	No	01	10 %				significant
Statement Three	Yes	07	70 %	1.6	3.84	0.05	
	No	03	30 %				ot Significant
Statement Four	Yes	08	80 %	3.6	3.84	0.05	
	No	02	20 %				ot Significant
Statement Five	Yes	09	90 %	6.4	3.84	0.05	
	No	01	10 %				significant
Statement Six	Yes	08	80 %	3.6	3.84	0.05	
	No	02	20 %				ot Significant
Statement Seven	Yes	08	80 %	3.6	3.84	0.05	
	No	02	20 %				ot Significant
Statement Eight	Yes	06	60 %	0.4	3.84	0.05	
	No	04	40 %				ot Significant
Statement Nine	Yes	06	60 %	0.4	3.84	0.05	
	No	04	40 %				ot Significant

Through the analysis of the results of statistical Table No. (02), the findings showed that the majority of the sample members tend to agree with the content of this hypothesis, where the first statement recorded an approval rate of 70%, which reflects a considerable positive orientation despite some variation. As for the second statement, it recorded a very high percentage estimated at 90%, which is statistically significant, indicating a strong confirmation of coaches' control over the intensity and volume of training. The third, fourth, sixth, and seventh statements recorded approval rates ranging between 70% and 80%, which are percentages that reflect a good level of agreement among the sample members and confirm that the process of controlling training load is noticeably practiced. Meanwhile, the fifth statement recorded a rate of 90%, which reinforces this positive trend.

On the other hand, it was observed that the eighth and ninth statements recorded a lower approval rate (60%), which indicates a relative variation in coaches' opinions, and may reflect differences in the degree of control or in the application of methods for regulating training intensity and volume among coaches. As for the chi-square (χ^2) test, the calculated value reached 3.84 at a significance level of 0.05, which is equal to the tabulated value, meaning that the results lie on the threshold of statistical significance; where some statements are statistically significant and others are not, depending on the distribution of responses.

Based on the above, it can be said that the results of the study largely support the second hypothesis, as it appears that coaches of the under-20 category do indeed control the intensity and volume of training; however, this control is not at the same level among all coaches, which explains the existence of some differences in the responses of the sample members.

2-2 Discussion of the results in light of the hypotheses:

Through the results of the questionnaire administered to the coaches of the Batna Regional League (Elite Division) for the under-20 category, whose aim was to test the validity or invalidity of the partial hypotheses proposed at the beginning

of our study—which are considered tentative answers—and through the analysis and interpretation of the results, several facts that we aimed to reach and which were set at the beginning of the study were identified. The findings revealed the following:

First: Discussion of the first partial hypothesis: The results of the study showed that the majority of the sample members confirmed their reliance on systematic scientific planning of the training load, which indicates awareness among coaches of the importance of planning in organizing the training process and achieving the set objectives. Accordingly, the results are consistent with the first hypothesis and confirm its validity.

Second: Discussion of the second partial hypothesis: The results indicated that coaches take into account the control of the intensity and volume of the training load according to the requirements of the training stage and the players' level, through the adjustment of training doses and the distribution of workloads in a manner consistent with the players' capacities. Accordingly, the results are in line with the second hypothesis and support its validity.

Third: Discussion of the general hypothesis: In light of the obtained results, it was found that there are differences among coaches in the level of application of the principles of training load planning, which can be explained by differences in professional experience and academic training among them. Consequently, the results are consistent with the general hypothesis and confirm the existence of variation in the level of training planning among coaches.

3- CONCLUSION:

Through what we have carried out in both the theoretical and practical aspects, and based on the previous data, and starting from the research problem concerning the reality of training load planning among football coaches for the under-20 category, we formulated a main hypothesis stating that there is a clear variation in the level of training load planning among football coaches for the under-20 category according to differences in their experience and academic training. We also formulated two partial hypotheses as tentative answers to the sub-questions: the first states that coaches rely on systematic scientific planning of the training load, while the second states that coaches control the intensity and volume of training.

It has been found that the process of training load planning represents a fundamental and central element in the success of the training process and in achieving the objectives set during the sports season, as it is the scientific tool on which the coach relies to organize training content and regulate its components in a way that matches the physical, technical, and tactical characteristics of players in this sensitive age category.

The results of the study showed that the majority of coaches demonstrate clear awareness of the importance of scientific planning of the training load, as they rely—at varying degrees—on the principles of planning and organization in preparing training sessions. This reflects a relative development in the coaching culture among coaches working with the under-20 category. The results also revealed that coaches seek to control the intensity and volume of the training load according to the requirements of the training phase and the seasonal objectives, while taking into account the players' level and their response to the applied loads.

However, the study also showed the existence of variation among coaches in the level of application of training load planning principles, whether in terms of programming accuracy or in the use of modern scientific methods for quantifying and monitoring loads. This can be explained by differences in professional experience, academic qualification, and the degree of exposure to recent scientific developments in the field of sports training. In addition, some coaches still rely to a certain extent on personal experience and field practice more than on precise scientific foundations, which may negatively affect the effectiveness of the training process and the long-term development of players.

These results confirm that the success of training load planning is not only linked to the existence of a written training program, but also requires scientific and methodological competence from the coach in analyzing competition requirements, diagnosing players' levels, and regulating training load components in terms of intensity, volume, density, and rest, with the ability to make continuous adjustments based on feedback and field data. The study also highlights the importance of continuous coach education and updating their scientific knowledge

in order to improve the quality of training planning and enhance players' performance.

In light of the above, it can be said that the reality of training load planning among football coaches of the under-20 category shows an acceptable level of scientific application, but it still requires further development and scientific and methodological structuring to ensure the unification of training practices and their advancement toward more professional and effective levels, in line with the requirements of modern football and the principles of long-term athletic development.

Accordingly, the study confirms that scientific training load planning is a fundamental pillar in the formation of young football players, and that improving its level among coaches would have a positive impact on the quality of sports performance, enhance the physical, technical, and tactical efficiency of players, and contribute to building a youth base capable of meeting the demands of high-level competition in the future.

4- Recommendations and Suggestions:

At the end of our research, we arrived at a set of recommendations and proposals, which are as follows:

1. The necessity of adopting systematic scientific planning in the preparation of training programs, and avoiding randomness in the organization of training loads.
2. Intensifying training courses and practical internships for coaches in the field of planning and regulating training load according to the latest scientific methods adopted in modern sports training.
3. Requiring clubs and youth categories to prepare written annual and periodic training plans that include objectives, content, and training loads for each stage of the sports season.
4. Encouraging coaches to use scientific measurement and evaluation tools to monitor training load intensity, such as physical fitness tests, heart rate monitoring, and perceived exertion scales.
5. Taking into account the age, physiological, and psychological characteristics of under-20 players when planning training loads in order to avoid inappropriate or excessive loads.
6. Strengthening coordination between the technical, medical, and physical staff within clubs to regulate training loads in a way that achieves a balance between physical development and injury prevention.

7. Encouraging coaches to pursue continuous academic education and to consult recent research and studies in the field of sports training and football.
8. Adopting the principle of individualization in training by adapting training loads according to individual differences among players in terms of level, abilities, and training response.
9. Introducing periodic monitoring and evaluation programs for coaches by the supervising bodies responsible for sports training and coaching in order to assess their adherence to scientific planning principles.
10. Providing modern technological tools within clubs (performance analysis software, GPS, effort monitoring devices) to help regulate training load more accurately.

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