

A descriptive study of recovery strategies used by football coaches during periods of congested match schedules: Regional League of Batna clubs as a model

دراسة وصفية لاستراتيجيات الاسترجاع المستخدمة من قبل مدربي كرة القدم خلال فترات ضغط المباريات - أندية الرابطة الجهوية باتنة نموذجاً

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Abstract: This study aims to highlight the reality of recovery strategies used by football coaches in the clubs of the Regional League of Batna during periods of competitive pressure. The descriptive analytical method was adopted. The study population consisted of all football coaches in the Regional League of Batna, from which a sample of 40 coaches was selected using simple random sampling. A questionnaire was used as the main data collection tool and was designed around two main axes: the nature of recovery methods used, and the coaches' knowledge, scientific foundations, and constraints related to recovery planning during congested match schedules.

The results showed that most coaches rely mainly on passive recovery and traditional methods, with limited use of modern recovery strategies. They also revealed differences in scientific awareness, as coaches focus primarily on the physical aspect while neglecting other dimensions of recovery.

Keywords: Competitive period, recovery, sports training.

الملخص: تهدف هذه الدراسة إلى تسليط الضوء على واقع وطبيعة استراتيجيات الاسترجاع التي يعتمد عليها مدربي كرة القدم في أندية الرابطة الجهوية باتنة، وذلك خلال فترات ضغط المنافسة. تم استخدام المنهج الوصفي بأسلوبه التحليلي، وتمثل مجتمع الدراسة في جميع مدربي كرة القدم الناشطين في أندية الرابطة الجهوية لكرة القدم باتنة و تم اختيار 40 مدرباً كعينة للدراسة تم اختيارهم بالطريقة العشوائية البسيطة، كما تم الاعتماد على الاستبيان كأداة أساسية لجمع البيانات، وقد تم تصميمه ليتكون من محورين أساسيين، - المحور الأول: يتناول "طبيعة الوسائل والأساليب المستخدمة في الاسترجاع" - المحور الثاني: يتناول "المعارف والأسس العلمية والمعوقات التي تواجه المدرب" في برمجة الاسترجاع أثناء ضغط المباريات. وقد توصلت الدراسة الى النتائج التالية:

أظهرت النتائج أن معظم مدربي الرابطة الجهوية باتنة لا يزالون يعتمدون بشكل كبير على الاسترجاع السلبي (الراحة التامة) والوسائل التقليدية، مع تسجيل نقص حاد في استخدام الوسائل الحديثة. كما توصلت الى وجود تباين في

مستوى الإدراك العلمي لأهمية الاسترجاع؛ حيث يركز المدربون على الجانب البدني فقط مع إهمال واضح لبقية جوانب الاسترجاع.
- الكلمات المفتاحية : فترة المنافسة ، الاسترجاع ، التدريب الرياضي

- The methodological steps followed in a scientific paper:
- Theoretical chapter

*** Introduction and problematic of the study:**

Modern football is considered one of the most demanding sports in terms of physical and mental effort, due to the high pace of competitions and the density of matches throughout the sporting season. This development has forced those in charge of training to seek modern scientific methods to maintain players' readiness and ensure continuity of high performance. Among the most important of these methods are recovery strategies, which have become a fundamental component of contemporary training planning. Recovery is no longer merely passive rest, but rather a programmed process aimed at restoring the player's functional balance after exertion. (Bompa & Buzzichelli, 2019, p. 312)

Under conditions of match congestion, especially when playing more than one match per week, the importance of recovery increases significantly, as players are exposed to high levels of muscular, nervous, and psychological fatigue. Poor control of this phase may lead to a decline in physical condition, decreased technical performance, and an increased rate of injuries. Therefore, it has become necessary for the coach to possess accurate scientific knowledge regarding the timing and appropriate recovery methods, in line with the nature of the training and competitive load. (Impellizzeri et al., 2004, p. 74)

Contemporary scientific literature indicates that recovery strategies vary across physical, nutritional, hydric, and psychological dimensions, emphasizing the integration of these aspects to achieve effective recovery. It also recommends the use of modern methods such as cryotherapy, compression techniques, and psychological interventions, especially during periods of congested competitions. However, the application of these recommendations differs from one training environment to another depending on the available resources and the level of coaches' scientific education. **(Kellmann, 2010, p. 8)**

Several researchers have addressed studies similar to the subject of the present research, including the study by Kellmann (2010), which aimed to clarify the importance of balancing physical load and recovery processes among athletes, especially in high-intensity sports. The researcher adopted the descriptive analytical method through a review of a large number of experimental and applied studies. The results confirmed that neglecting recovery leads to overtraining and a decline in performance levels. The study also emphasized the need to adopt diversified recovery strategies that include both physical and psychological aspects, as well as the importance of precise temporal planning of recovery. This study is considered a fundamental reference in highlighting the scientific dimension of recovery; however, it did not focus on the reality of field application by coaches in environments with limited resources.

Another relevant study is that of Reilly and Ekblom (2005), which aimed to identify the most commonly used recovery methods after sports competitions, with a focus on football. The two researchers used the descriptive method by analyzing the results of previous field studies. The study concluded that coaches rely heavily on rest and massage, while the use of modern methods such as cryotherapy and compression remains limited. The results also showed that the choice of recovery method is often linked to available resources rather than

scientific principles. These findings are similar to the reality of many local clubs; however, the study did not address periods of congested match schedules in depth.

In addition, the study by Impellizzeri et al. (2004) focused on the relationship between training load and recovery among professional football players. The study adopted the descriptive analytical method using indicators of internal load such as perceived exertion. The results showed that poor recovery planning during periods of congested match schedules leads to a decline in performance and an increased risk of injury. The study also emphasized the role of the coach in understanding the physiological and psychological indicators of players. Despite the importance of this study, it focused on the elite professional level, which highlights the need for field studies at regional and local levels, as sought by the present study.

At the local level, particularly in the clubs of the Regional League of Batna, training work is carried out under limited material and organizational conditions, which may be reflected in the nature of the recovery strategies adopted. In addition, the focus is often placed on the traditional physical aspect, with an absence or weakness in attention to nutritional and psychological aspects. This reality raises questions about the extent to which coaches in these clubs keep pace with scientific developments in the field of recovery.

Hence, the research gap becomes evident in the lack of studies that have addressed the reality of recovery strategies used by football coaches in the Regional League of Batna, especially during periods of congested match schedules, the extent of their reliance on scientific principles and modern methods, as well as the constraints that limit their application.

Based on the above, the following general research question can be raised: **What is the reality of recovery strategies used by football coaches in the clubs of**

the Regional League of Batna during periods of congested match schedules?

Accordingly, the specific research **questions** were formulated as follows:

- What is the nature of the methods and techniques used in recovery strategies (physical, nutritional, hydric, and psychological) by football coaches in the clubs of the Regional League of Batna during periods of congested match schedules?
- What is the level of scientific knowledge among football coaches in the clubs of the Regional League of Batna regarding recovery planning, and what are the main constraints that limit its application during periods of congested match schedules?

The researchers proposed the following general hypothesis:

- Recovery strategies adopted by football coaches in the clubs of the Regional League of Batna during periods of congested match schedules rely on traditional methods, with a weakness in the use of scientific principles and modern methods.

The hypotheses were formulated as follows:

- Football coaches in the clubs of the Regional League of Batna rely on traditional recovery methods during periods of congested match schedules, with limited use of modern recovery strategies in their various forms.
- Football coaches in the clubs of the Regional League of Batna possess an uneven level of scientific knowledge related to recovery planning, with the presence of material and organizational constraints that limit attention to nutritional and psychological aspects during periods of congested match schedules.

This study aims to identify the reality of recovery strategies adopted by football coaches in the clubs of the Regional League of Batna during periods of congested match schedules. It seeks to determine the nature of the physical, nutritional, hydric, and psychological recovery methods used, as well as to assess the extent to which coaches take modern scientific principles into account when planning recovery. The study also aims to identify the level of coaches' scientific knowledge regarding recovery and the main constraints that limit the application of modern recovery strategies within clubs.

The scientific importance of this study lies in its contribution to enriching the literature on recovery strategies in football, particularly in the context of congested match schedules, and in providing descriptive data on training practices at the regional level. Practically, the study offers a realistic picture of recovery practices, helps coaches identify shortcomings in their methods, guides them toward more effective and feasible recovery strategies, and contributes to improving player readiness, reducing injury risk, and enhancing performance during periods of competitive congestion.

The practical chapter:

1- Followed Methodologies:

Pilot study:

The pilot study aimed to verify the validity of the research instrument and its suitability to the nature of the study sample and topic. It was conducted on a small group of football coaches from the clubs of the Regional League of Batna, outside the main sample, in order to test the clarity of the questionnaire items and the ease of understanding them. This study also helped to examine the consistency of the questionnaire axes with the

research objectives and questions, as well as to determine the time required to complete the questionnaire. In addition, it enabled the researcher to identify potential difficulties during data collection and avoid them in the main study. The results of the pilot study led to making some minor modifications to the wording of certain items, which increased the accuracy and reliability of the instrument before its final application.

Research methodology:

In line with the nature of the study topic and its objectives, the descriptive method with an analytical approach was adopted, as it is the most appropriate for studying the reality of recovery strategies used by football coaches in the clubs of the Regional League of Batna during periods of congested match schedules. This method allows for describing the phenomenon as it exists in the field, collecting relevant data, and analyzing and interpreting it. It also makes it possible to identify the nature of relationships between the study variables without intervening in or controlling them. The descriptive analytical method is considered suitable for this type of study, which relies on the questionnaire as the main tool for data collection.

Study population and sample:

The study population consisted of all football coaches active in the clubs of the Regional Football League of Batna. The study sample included forty (40) coaches drawn from the study population. The sample was selected using the simple random sampling method, whereby any coach officially affiliated with the clubs of the Regional League of Batna was eligible for selection, without distinction based on club category or level. This sampling method aimed to ensure adequate representativeness of the study population and

to provide a realistic picture of coaches' practices regarding recovery strategies during periods of congested match schedules.

Data collection tools:

This study relied on a questionnaire as the main data collection tool, designed according to the study objectives, relevant literature, expert review, and a pilot study to ensure clarity and validity.

The questionnaire consisted of two main axes, each including eight items: the first focused on the nature of recovery methods used (physical, hydric, nutritional, and psychological), and the second addressed coaches' scientific knowledge and the constraints affecting recovery planning during congested match schedules.

A graded response scale was used to facilitate statistical analysis, and confidentiality was ensured, making the questionnaire an effective tool for assessing recovery strategies and related constraints.

Psychometric properties of the questionnaire:

First: Validity

Face validity was established by presenting the questionnaire to five experts in sports training and football, with an agreement rate of 88%, indicating good instrument validity.

Second: Reliability

Table (01): Instrument reliability

Reliability coefficient for the first axis (nature of recovery methods)	0.81
Reliability coefficient for the second axis (scientific knowledge and constraints)	0.84
Overall reliability coefficient of the questionnaire	0.83

Based on Table (01), the values are high and indicate that the questionnaire has a high degree of reliability, as all coefficients exceeded the scientifically acceptable threshold (0.70), which allows the instrument to be applied to the main sample with confidence.

Statistical methods used:

The data were processed using the SPSS software, relying on a set of descriptive and inferential statistical methods appropriate to the nature and objectives of the study, including: Frequencies, Percentages, Arithmetic mean, Standard deviation, Chi-square test (χ^2), Cronbach's alpha reliability coefficient.

2- Exposure, analyses and result exam :

Presentation, analysis, and discussion of the results of the first hypothesis:

Presentation and analysis of the hypothesis results:

Hypothesis statement: Football coaches in the clubs of the Regional League of Batna rely on traditional recovery methods during periods of congested match schedules, with limited use of modern recovery strategies in their various forms.

Table (02): Coaches' responses regarding the first axis''

Statement	Always	Often	Some- times	Rarely	never	$\bar{x}$	SD	χ^2
Reliance on complete rest after matches	18	12	6	4	0	4.10	0.98	16.25
Use of massage after matches	17	13	6	4	0	4.08	0.96	15.60
Use of stretching exercises after matches	15	14	7	4	0	4.00	0.94	13.90
Application of active recovery exercises	12	13	9	4	2	3.73	1.08	9.80
Attention to fluid replacement after matches	10	12	10	6	2	3.55	1.10	7.60
Attention to post-match meals	8	10	12	6	4	3.30	1.12	6.40
Use of cold or hot baths	6	8	12	8	6	3.05	1.20	5.10
Attention to the psychological aspect and sleep regulation	5	7	11	9	8	2.88	1.22	4.60

The tabulated chi-square value at a degree of freedom (4) and a significance level of 0.05 is 9.49. Overall, Table (02) indicates that coaches clearly tend to use traditional recovery methods more than modern ones. This is reflected in the high mean scores for items related to rest, massage, and stretching, compared with lower mean values for

items related to cold/hot baths and the psychological aspect. The results show that reliance on complete rest after matches recorded the highest mean (4.10 ± 0.98), with the majority of coaches (30 out of 40) responding “always” or “often,” and a chi-square value (16.25) exceeding the tabulated value, indicating a statistically significant tendency toward passive recovery. Similarly, massage and stretching exercises showed high mean values (4.08 ± 0.96 and 4.00 ± 0.94 , respectively), with statistically significant chi-square values, confirming their widespread use as traditional recovery methods due to their simplicity and low cost. Active recovery exercises recorded a relatively high mean (3.73 ± 1.08), with a weak but significant chi-square value, indicating moderate and less consistent use compared to traditional methods. In contrast, fluid replacement and post-match nutrition showed moderate mean values (3.55 ± 1.10 and 3.30 ± 1.12) with non-significant chi-square values, reflecting variability in coaches’ practices and the absence of a unified approach toward nutritional recovery. The use of cold or hot baths recorded a low mean (3.05 ± 1.20), while the psychological aspect and sleep regulation showed the lowest mean (2.88 ± 1.22), both with non-significant chi-square values. This indicates weak and inconsistent attention to modern and psychological recovery strategies, mainly due to limited resources and facilities. Overall, these findings confirm that football coaches in the Regional League of Batna predominantly rely on traditional recovery methods, while modern, nutritional, and psychological recovery strategies receive limited attention during periods of congested match schedules.

Discussion of the results of the first hypothesis:

The results of the first axis showed that football coaches in the clubs of the Regional League of Batna rely mainly on traditional recovery methods during periods of congested match schedules, as indicated by the statistically significant high means for

complete rest, massage, and stretching exercises. This reflects the prevailing training practices at the regional level, where coaches favor methods that are easy to apply and do not require special equipment or high costs. These findings are consistent with previous studies reporting that non-professional coaches tend to depend on passive and simple physical recovery methods due to limited material and human resources and the absence of specialized medical staff.

In contrast, the results revealed weak attention to nutritional, hydric, and psychological recovery, with no statistically significant differences, indicating variability in coaches' responses and a lack of a unified approach. This may be attributed to insufficient scientific training and limited facilities within regional clubs.

Overall, the findings highlight a gap between modern scientific recommendations advocating integrated recovery strategies and the practical reality in Regional League of Batna clubs. Accordingly, the first hypothesis, which states that football coaches rely on traditional recovery methods with limited use of modern strategies during congested match schedules, was confirmed.

Presentation, analysis, and discussion of the results of the second hypothesis:

Presentation and analysis of the hypothesis results

Hypothesis statement: Football coaches in the clubs of the Regional League of Batna possess an uneven level of scientific knowledge related to recovery planning, with the presence of material and organizational constraints that limit attention to nutritional and psychological aspects during periods of congested match schedules.

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Table (03): Coaches' responses regarding the second axis

Statement	Always	Often	Some- times	Rarely	never	$\bar{x}$	SD	χ^2
I possess sufficient scientific knowledge about the timing of recovery	9	11	10	7	3	3.40	1.15	6.90
I plan recovery according to training load and match congestion	8	10	12	7	3	3.32	1.13	6.20
I distinguish between types of recovery according to players' condition	7	9	13	7	4	3.20	1.18	5.80
I focus more on the physical aspect than on the nutritional and psychological aspects	14	12	8	4	2	3.80	1.05	11.90
Lack of equipment and facilities limits the application of modern recovery	16	13	6	3	2	3.95	1.00	14.60
Insufficient financial resources hinder recovery planning	17	12	5	4	2	4.00	0.98	15.20
Lack of scientific training affects the application of recovery	15	13	6	4	2	3.90	1.02	13.80
Absence of medical staff affects the effectiveness of recovery	18	11	5	4	2	4.03	0.97	16.10

The tabulated chi-square value at a degree of freedom (4) and a significance level of 0.05 is 9.49. The results of the second axis indicate that the level of scientific knowledge among football coaches in the clubs of the Regional League of Batna regarding recovery

planning is moderate, as the items related to knowledge and planning recorded mean values ranging between 3.20 and 3.40, with non-significant chi-square values. This reflects variability in coaches' responses and a lack of clear agreement on possessing sufficient scientific knowledge in this field.

In contrast, the items related to constraints (lack of equipment, limited financial resources, insufficient training, and absence of medical staff) showed high mean values ranging from 3.90 to 4.03, with statistically significant chi-square values, indicating strong agreement among coaches that these factors constitute real obstacles to the proper scientific application of recovery strategies. The results also revealed a statistically significant tendency to focus more on the physical aspect than on nutritional and psychological aspects, reflecting a prevailing orientation toward traditional approaches at the expense of a comprehensive scientific integration of recovery.

Discussion of the results of the second hypothesis: The tabulated chi-square value at a degree of freedom (4) and a significance level of 0.05 is 9.49. The results of the second axis indicate that the level of scientific knowledge among football coaches in the clubs of the Regional League of Batna regarding recovery planning is moderate, as the items related to knowledge and planning recorded mean values ranging between 3.20 and 3.40, with non-significant chi-square values. This reflects variability in coaches' responses and a lack of clear consensus about possessing sufficient scientific knowledge in this area. In contrast, the items related to constraints (lack of equipment, limited financial resources, insufficient training, and absence of medical staff) recorded high mean values ranging from 3.90 to 4.03, with statistically significant chi-square values, indicating strong agreement among coaches that these factors represent major obstacles to the proper scientific application of recovery strategies. The results also

showed a statistically significant tendency to focus more on the physical aspect than on nutritional and psychological aspects, highlighting the dominance of traditional approaches over an integrated scientific perspective. Based on these findings, it is evident that material, organizational, and scientific factors play a key role in limiting the effective application of modern recovery strategies in Regional League of Batna clubs. Accordingly, the second hypothesis—stating that coaches possess an uneven level of scientific knowledge regarding recovery planning, with material and organizational constraints limiting attention to nutritional and psychological aspects during congested match schedules—was confirmed.

3- Finding and propositions results

The results of the study show that football coaches in the Regional League of Batna rely mainly on traditional recovery strategies such as complete rest, massage, and stretching exercises, while modern nutritional, hydric, and psychological recovery methods are weakly applied. The findings also reveal variability in coaches' scientific knowledge and confirm the presence of several constraints, including lack of equipment, limited financial resources, insufficient specialized training, and absence of medical staff. These results highlight a clear gap between modern scientific recommendations and actual practice at the regional level.

Overall, the study confirms that recovery planning in these clubs lacks a comprehensive scientific approach, particularly during periods of congested match schedules, which may negatively affect players' readiness, performance, and injury prevention. Therefore, the study recommends organizing specialized training courses for coaches in recovery science,

providing basic recovery equipment according to clubs' capacities, involving specialists in nutrition and sports psychology, integrating recovery planning as a core component of training programs, and conducting further studies on broader samples and different competitive levels to enhance training practices based on scientific principles.

4- List of used sources and references in the study

Bompa, T. O., & Buzzichelli, C., *Periodization: Theory and Methodology of Training*, Human Kinetics, 2019.

Reilly, T., *The Science of Training Soccer*, Routledge, 2007.

Impellizzeri, F. M., Rampinini, E., Coutts, A. J., Sassi, A., & Marcora, S. M., Use of RPE-based training load in soccer, *Medicine & Science in Sports & Exercise*, Vol. 36, No. 6, 2004, pp. 1042–1047.

Kellmann, M., Preventing overtraining in athletes in high-intensity sports and stress/recovery monitoring, *Scandinavian Journal of Medicine & Science in Sports*, Vol. 20, Suppl. 2, 2010, pp. 95–102.

Reilly, T., & Ekblom, B., The use of recovery methods post-exercise, *Journal of Sports Sciences*, Vol. 23, No. 6, 2005, pp. 619–627.

Franchini, E., Takito, M. Y., & Kiss, M. A. P. D. M., Performance and recovery in competitive sports, *Brazilian Journal of Sports Science*, Vol. 33, No. 2, 2011, pp. 229–246.

Kellmann, M., Recovery and performance during congested competition schedules, Paper presented at the International Conference on Modern Sports Training, Berlin, Germany, 2010.