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Health education and its relationship to sports injuries among the half-long runners in Algeria. A field study for runners and half long-distance coaches.

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Abstract:

This study aims to know the importance of health education in the life of the half-long runners and its relationship to the sports injuries that athletes are exposed to on an ongoing basis, the extent of trainers' awareness and the availability of the necessary capabilities to take care of the runners. Where the researcher relied on the descriptive analytical approach in a sample of 50 runners and 20 coaches based on the questionnaire and the appropriate statistical methods, and one of the most important findings is that each of the periodic medical monitoring, the availability of recovery means and the nutritional habits of the runners are directly related to their exposure to injuries in the absence of awareness the health of both the runner and the coach and the lack of material and human capabilities.

KEY WORDS : Health education - Sports injury –Half long distances.

الملخص:

تهدف هذه الدراسة إلى معرفة أهمية التربية الصحية في حياة عدائي المسافات نصف الطويلة وعلاقتها بالإصابات الرياضية التي يتعرض لها الرياضيون بشكل مستمر ومدى وعي المدربين وتوفر الإمكانيات اللازمة للتكفل بالعداء. حيث إعتمد الباحث على المنهج الوصفي التحليلي في عينة متكونة من 50 عداء و 20 مدرب معتمدا على إستمارة الإستبيان والوسائل الإحصائية المناسبة، ومن أهم النتائج المتوصل إليها أنه لكل من المراقبة الطبية الدورية وتوفر وسائل الإسترجاع والعادات الغذائية للعدائيين علاقة مباشرة بتعرضهم للإصابات في ظل غياب الوعي الصحي لكل من العداء والمدرب وقلة الإمكانيات المادية والبشرية.

الكلمات الدالة: التربية الصحية– الإصابة الرياضية– المسافات النصف الطويلة.

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1-Introduction:

In light of the great development that the current era is experiencing in various vital and scientific fields, the life of the individual in general is almost a continuous series of opportunities for benefits and harms, and sports have also experienced a rapid development to reach global levels and efforts are still continuing towards a better understanding of the rules and foundations of the athlete raining science.
(راتب، الخولي،كمال، 2000: 93).
It is true that many scientific studies have shown that the inhabitants of the Mediterranean have a genetic pattern that qualifies them to excel in long distances more than others, and Algeria is one of those countries that contains a large number of talents that can achieve the best results in the world in the field of half long distances, the results obtained at the Olympic Games and World Championships in this discipline since the past are the best proof.
Although the origin of the training is the completeness and lack of familiarity with all aspects will expose the athlete to a group of health and psychological problems, as we used to say that sport is health, the large number of injuries and accidents during the practice of sports, especially of a competitive nature, would sometimes negate this dictum. Youcef Kemach states, "A person's good health carries with it a deep truth, which is the basis for the continuity of life and the individual's performance of his or her usual activities."(كماش، 2013: 03). Where one is usually or suddenly injured, but the question about this injury makes us understand the mistakes that caused this health imbalance to occur. The availability of awareness and real understanding of these errors allows runners and coaches to have the possibility of preventing their occurrence, because sports injuries in view of current developments have become the only concern that prevents the athlete from achieving their goals, when it can be considered a factor accompanying the practice of sports, through previous studies, the study of (طايري سليمة، 2012) indicated the extent of the danger of high-intensity training for young people and its impact on their growth and its contribution to their exposure to injuries resulting from fatigue and exhaustion resulting from sports training without trainers controlling its principles and the use of inappropriate methods and ways that expose them to health problems and the need to abandon the idea of achieving results in a short time and at an early age.

Given that the specialization of half-distance races requires great physical and psychological endurance, resulting in high energy consumption that makes them vulnerable to fatigue and exhaustion, the quality and quantity of rest suitable for the work must be taken into consideration until the runner regains his ability and physical condition permanently, which requires the availability of means, capabilities, care and special diet also a balanced and periodic medical follow-up to restore his form and maintain his health. In this regard, Prof. (غوال عدة وآخرون، 2018) highlighted in a study published in the Journal of Excellence in the Science and Techniques of Physical and Sports Activities on the effect of using cold pools after intense doses of training to improve the recovery process of players, as it is among the most important means of recovery to increase the efficiency of the athlete and prevent microscopic injuries.

All this exists in theory, but looking at our reality, we find ourselves far from modern sports training and its requirements, as Algerian sports clubs still suffer from a serious lack of means of recovery and we find runners of the national team rely on random food despite its severity, this is confirmed by the study of (عناني سليم وآخرون، 2021) of the Journal of Excellence in the Science and Techniques of Physical and Sports Activities, which aimed to highlight the role of physical activity and healthy diet in the prevention of osteoporosis, as it concluded that good nutrition helps to keep the body healthy and work to satisfy its sensory and psychological desires as well.

Where we find the Algerian trainer familiar with these factors, but he does not work on the field and is still entrusted with all the tasks. In addition to training, he is at the same time masseur, psychiatrist, doctor, nutritionist and walker. In addition to training, he is a masseur, psychiatrist, doctor, nutritionist and walker, etc., at a time when modern sports training requires the presence of a technical staff and in view of all this the runner suffers enormously from a sports injury without receiving the necessary care and although the ideal diet of the athlete, for example, or his massage or medical examinations is not a complicated matter, but it was also necessary to adopt health practices and a culture that the runner appreciates from the beginning of his career as an athlete and apply it in his daily life. Sometimes the simplest things are the most dangerous. All these inconsistencies are not the responsibility of one person, but rather the task of the Algerian sport system as a whole.

Given the accompanying athletic injury, the inability to meet athletic and educational goals, the following question comes to mind:

Does health education have anything to do with sports injuries of half distance runners?

In order to facilitate the answer to this question, this problem can be divided and developed as follows:

- Does the availability of periodic medical follow-up have anything to do with sports injuries of half-distance runners?
- Is there a relationship with the means of recovery and its use with sports injuries of half-distance runners?
- Is dietary habits related to sports injuries of half-distance runners?

General hypothesis:

Health education is related to sports injuries of half-distance runners.

Partial hypotheses:

-Availability of periodic medical follow-up is related to sport injuries of half-distance runners.

- Recovery methods and their use are related to sports injuries of half-distance runners.
- Dietary habits related to sports injuries of half-distance runners.

2- General objective of the study:

Our research aims to highlight the relationship between health education and sports injuries of half-distance runners, highlighting the availability of recovery methods in sports clubs and the need for medical and periodic monitoring and follow-up in addition to being attentive to the nutrition needed for runners, because this study is a general and serious attempt to know the real reasons for the exposure of runners to sports injuries and the recurrence of their occurrence, while highlighting the daily gestures that would preserve the health of the athlete and spread health awareness within the sports system and society.

3- Procedural definition of the concepts mentioned in the research:

3.1 Health education: (سلامة،2007: 42) identifies it as an important part of public education and its mission is not limited to the individual living in an environment conducive to modern life, but rather to provide individuals with a better understanding and appreciation of health services available in the community and benefit from them for the most possible, as well as to provide community members with health information and instructions related to their health with the aim

of effectively influencing their attitudes and work to change and develop their healthy behavior to help them achieve physical, psychological, social and mental safety and sufficiency.

The researcher concludes that health education is any action aimed at changing the behavior of individual athletes for the better and to acquire and maintain healthy habits of nutrition, medical monitoring and optimal recovery, as well as to benefit from available health services, which allows them to develop their level and avoid sports injuries.

3-2 Sports injury: (زاهر، 2004: 84) defines it as follows: a sports injury is the impact of a body tissue or group of tissues as a result of an external or internal influence, which results in a disruption of the work or function of that tissue.

The researcher concludes that sports injury is the defect that affects the runner's body, which results in spasms and ruptures of ligaments, tendons and muscles in moderate degrees, which usually turn into irregularity in the training process.

3-3 Half-long distances: (Medium distances) (بسطيوسي، 1999: 146) defines it as follows: Half-distances are part of running activities where it can be seen that they are closely related to the element of endurance, especially speed endurance and that is why they are called endurance races.

Half distance races include every 1500m and 800m race and it is also scheduled in the compound games competition, as found in the women's heptathlon running 800m, while in the men's decathlon there is a 1500m race and the high level of middle distance running depends on many elements for which the competitor has to prepare himself physically and skillfully psychologically and schematically.

The researcher concludes that half-distances are one of the specialties of athletics, which are track races with distances up to 3000m, the standard distances being 800m, 1500m and mile. These races have important characteristics that make them distinctive, as the runner combines particular levels of endurance and speed called speed endurance.

4- The methodological procedures used in the study:

4-1 Method and tools:

4-1-1 The scientific method used in the study: The word "methodology" refers to the method of conceptualizing and organizing the research, the method stating how to conceive and plan the work on

a subject of study as it intervenes in a more or less urgent manner, with more or less precision at all stages of the research or In some, the curriculum is an organized set of processes that seek to achieve an objective. (موريس أنجرس، 2006: 99). Depending on the nature and requirements of the research, the researcher used the descriptive analytical approach, which works to organize the phenomenon, classify it and express it quantitatively and qualitatively, allowing for understanding and drawing conclusions and generalizations.
(الجادري، أبو الحلو، 2009: 198).

4-1-2 The exploratory study: The conduct of exploratory studies is necessary in many research studies and this stage included several steps which we summarize as follows:

- Firstly, the researcher contacted the athletics trainers, particularly those at the **"Fifth of July Stadium"** for athletics, since most of the national team runners train in the capital and the aim was to explain the subject of the study and to put the first touches to the research.
- Secondly, we went to the **National Center of Sports Medicine (C.N.M.S)** and consulted the records of the injuries suffered by the runners and their numbers. We also interviewed some doctors and physiotherapists to find out their views on the causes of the injuries. This study lasted two months (October and November).

4-1-3 The research community and its sample:

Characteristics of the research community: The study focuses on half-distance runners, where:

Age: The research community is in the age group (20 years and older), i.e. the senior class.

Gender: It is composed of both men and women.

Number of runners: The number of runners is one hundred (100) and they were selected on the basis of their participation in the national cross-country championship. The number of coaches is thirty (30), all of whom are "half distance specialists".

Research sample: Considering that the sample is an important part of any field study, we note that its concept: "It is a distinct subgroup in that it has the same characteristics as the community and is selected from the study community according to specific procedures and methods. (التل وآخرون، 2006: 194).

Sample selection method: The sample for this study was selected intentionally, as it included the runners participating in the national cross-country championship and the coaches who were with them and it was done in this way because it will benefit us more in our research.

Sample volume:

- The first sample is for the runners and it contained fifty (50) runners, corresponding to 45.45%.
- The second sample is for trainers and contains twenty (20) trainers, corresponding to 66.7%.

4-1-4 Areas of study:

- **Spatial scope:** The field study was conducted at the level of the Algiers Province on the runners who train at the "**Fifth of July Stadium**".

- **Temporal scope:** This study took place from November 2020 to April 2021 in two phases: the exploratory study stage, the theoretical part and the parallel practical stage.

4-1-5 Study variables: The independent variable is represented in our health education research.

The dependent variable is our research on **sports injuries of half-distance runners**.

4-1-6 Research tools:

Questionnaire: It is one of the tools for obtaining facts, data and information that are collected through the elaboration of a question form and among the advantages of this method is that it saves efforts and time and also helps to obtain data from samples in the shortest possible time and this by providing the conditions for rationing honesty, consistency and objectivity (الشافعي، 2005: 203).

Psychometric properties of the research tool:

a- Stability: is one of the basic psychometric properties. The stability of the test aims to give the same or close results if it's reapplied more than once under similar circumstances. (غريب، 2012: 81).

It is also the stability of the results of the measurement tool over time. Indeed, the measurement tool can be trusted if it gives the same results on the same sample regardless of the change in the moment of its application or the change in the persons applying it. (Jean-Lue Bernaud, 2007: 65)

In order to find the reliability of the questionnaire, we chose the test and retest method, where we calculated the Pearson correlation coefficient and obtained the following result: **The stability coefficient is 0.89**.

b- Validity: The valid test measures what it is supposed to measure and it is defined as an estimate of whether the test measures what you want to measure and everything you want to measure.

(حسن باهي و فاتن زكريا، 2004: 100).

In order to check the validity of the questionnaire, the researcher used the subjective validity as the most reliable of the experimental scores compared to the true degrees, which is measured by calculating the square root of the stability coefficient of the test:

Validity = √0,89 = 0.94

This confirms that the questionnaire is characterized by a high degree of validity.

C- Objectivity: Barrow and McGee define it as the degree of consistency between the scores of different individuals on the same test. Mohamed Sobhi Hassanin states that: "Consistency means objectivity, which means that the individual gets the same score if the referees differ. (424 :2004 ،حسانين). From the above, the questionnaire items that were applied are of good objectivity, appropriate and valid to measure what they were designed to measure.

Statistical tools: The aim of the field study is to try to answer the questions that have been raised in the problem, in addition to choosing the hypotheses that we have previously set, in order to achieve this objective.

The information is a sufficient square test (k^2) and a percentage (%).

4-2 Presentation and Analysis of Results:

4-2-1 Presentation and analysis of the results in the light of the first hypothesis:

Table n°(01): Represents the results of the first axis of the questionnaire addressed to the trainers.

Findings	Suggestions	Repeat	Percentage	Calculated k^2	Scheduled k^2	Significance level	Degree of freedom	Statistical significance
1	Always	02	10	9.7	5.99	0.05	02	Significant
	Sometimes	05	25					
	Never	13	65					
2	Always	02	10	5.2	5.99	0.5	02	Non Significant
	Sometimes	08	40					
	Never	10	50					
3	Always	0	0	24.7	5.99	0.05	02	Significant
	Sometimes	3	15					
	Never	17	85					

4	Always	0	0	30.33	5.99	0.05	02	Significant
	Sometimes	1	5					
	Never	19	95					

Table n°(02): Represents the results of the questionnaire first axis addressed to the runners

Questions	Suggestions	Repeat	Percentage	Calculated k^2	Scheduled k^2	Significance level	Degree of freedom	Statistical significance
5	Always	35	70	37	5.99	0.05	02	Significant
	sometimes	15	30					
	Never	0	0					
6	Always	5	10	17.5	5.99	0.05	02	Significant
	sometimes	15	30					
	Never	30	60					
7	Always	06	12	19.69	5.99	0.05	02	Significant
	sometimes	34	68					
	Never	10	20					
8	Always	04	08	53.32	5.99	0.05	02	Significant
	sometimes	05	10					
	Never	41	82					

Source: The researcher, (2021).

Analysis of the results representing the first axis findings through tables n°**(01) and** n°**(02):**

Finding No.(01): **The injured runner receives appropriate care until full recovery:** It is noted that 65% of the coaches confirmed that their runners did not receive appropriate care for full recovery from the injury, which allows them to return to training and competition in the best shape. This is confirmed by Mohemed Kadri Bakr that "the athlete should be placed first, not the results, so that the injury does not recur." (256 :2000 ،قديري بكري).

Finding No.(02): **Diagnosing runners' pain in training as worrying:** 50% of coaches confirm that the pain felt by the runner in training is not worrying at all and that it is normal if it is a positive pain, which is followed by an increase in fitness level and the second is negative and follows a decrease in level or leads to an injury.

Finding No.(03): **There is communication between you and a medical specialist throughout the sports season:** We find that 85% of the coaches admit that there was no communication with a medical

specialist during the sports season, despite the need for teamwork between the coach, the doctor and the athlete, as he emphasized the leading role of the coach in the later stages of treatment by supervising suitable exercises to rehabilitate and correct the injury in order to maintain the player's fitness. (77 :1995 ،حسن).

Finding No.(04): **The opinion of coaches that sports medicine centers in Algeria are sufficient:** 95% of coaches stated that sports medicine centers in Algeria are totally insufficient or almost non-existent, which makes it more difficult to take care of injured runners and ensure medical follow-up throughout the course of the race.

Finding No.(05): **A runner suffering from sports injury during their sporting career:** 70% of runners responded that they always get injured, indicating that this is a training exercise. Furthermore, the recurrence of their occurrence confirms the impossibility of achieving a full recovery, which is confirmed by Zaher: "The athlete's training loads and other factors expose him to injury." (40 :2006 ،زاهر).

Finding No.(06): **A runner consults a doctor if he feels pain:**60% of runners confirm to finish training if they feel pain without consulting the doctor, this is indicative of their unconscious impulsiveness. Unnecessary and exaggerated enthusiasms and charge can hurt runners and competitors.

Finding No.(07): **Periodic medical check-ups of the athlete during the sports season:** It is noted that 68% of the runners answered that they sometimes make periodic medical check-ups during the season, whereas 20% of them do not make any at all despite their need to prevent injuries and protect the health of the runner. This is what is stipulated in the ordinance N°: **76-79** of **October 23rd,1976** bearing public health law by virtue of the article 14: "Any participant in sports meetings of a violent nature must be subject to a prior physical fitness examination and regular medical monitoring.

Finding No.(08): **Runners subjected to anthropometric tests:** From table n°(02), it emerges that 82% of the runners did not undergo anthropometric measurements or ignored them at all, despite their importance in the prevention of sport. This is one of the necessary affairs for athletes who are exposed to intense training according to the physiological balance theory. (278 :2011 ،قديري بكري). Not to mention the congenital anomalies that some runners suffer from, such as one male being shorter than the other, this further increases the likelihood and complication of injuries.

4-2-2 Presentation and analysis of the results in the light of the second hypothesis:

Table n°(03): represents the results of the questionnaire second axis addressed to the trainers.

Questions	Suggestions	Repeat	Percentage	Calculated k^2	Scheduled k^2	Significance level	Degree of freedom	Statistical significance
9	Always	90	18	02	0.05	5.99	12.66	Significant
	sometimes	10	02					
	Never	0	0					
10	Always	25	05	02	0.05	5.99	17.5	Significant
	sometimes	75	15					
	Never	0	0					
11	Always	60	12	02	0.05	5.99	11.2	Significant
	sometimes	40	08					
	Never	0	0					
	Always	90	18					

Table n°(04): represents the results of the questionnaire second axis addressed to the runner.

Questions	Suggestions	Repeat	Percentage	Calculated k^2	Scheduled k^2	Significance level	Degree of freedom	Statistical significance
12	Always	10	05	02	0.05	5.99	49	Significant
	sometimes	10	05					
	Never	80	40					
13	Always	76	38	02	0.05	5.99	43.96	Significant
	sometimes	22	11					
	Never	02	01					
14	Always	34	17	02	0.05	5.99	5.08	Significant
	sometimes	46	23					
	Never	20	10					
	Always	10	05					

Source: The researcher, (2021).

Analysis of the results representing the findings of the second axis through tables n°(03) and n°**(04) :**

Finding No.(09): **There is a lack of material means when applying the recovery process by the trainers:** 90% of the trainers stated that

the lack of material means and capacities is one of the main obstacles they face in applying the recovery process after hard daily training. In this regard, Hazaa Mohamed Al-Hazzaa states, "Recovery methods in the sports complex work to protect the athlete's body from injury". (الهزاع، 2009: 15).

Finding No.(10): **Coaches confirm the number of hours of sleep of the runners:** it is found that 75% of the coaches responded that they sometimes confirm the number of hours of sleep of their runners and this is as a natural recovery method and to give the body a period of rest and recovery for all the damaged cells and tissues. This was confirmed by Abbas and Shehata: "Sleep is one of the essential things for recovery and maintaining periods of sleep helps the nervous system to perform its function with great efficiency and prevent any excessive effects." (الراحل، شحاتة، 1991: 53).

Finding No.(11): **Consideration of the process of massaging runners by coaches**: 60% of coaches admit that they always massage their runners without using the masseur, as massage is of great importance to get rid of the effects. This is confirmed by Riad in his saying: Massage in its different forms is a preventive treatment for injuries. (رياض، 1999: 9). However, this is dependent on the effectiveness of the trainer and the training he or she has received in the field of massage and first aid, as in the absence of his or her knowledge of the science of sports medicine, he or she is likely to push the rider beyond his or her limits and capabilities, leading to negative and counter-productive results.

Finding No.(12): **The presence of saunas and baths in runners' clubs:** Through table n°(04), it can be seen that 80% of the runners responded that there are no saunas and baths in their clubs, despite their importance in restoring runners' fitness and recovery, as confirmed by Zineb Al-Alam: "That after the use of sauna the accuracy and endurance of the muscles for the nominal physical load increases and the recovery process takes place more quickly after heavy loads." (العالم زينب، 1995: 85)

Finding No.(13): **Sports shoes and clothing worn by runners are not harmful to their bodies:** We find that 76% of runners find their sports shoes harmless to their bodies, but as long as the purchase of sports shoes is not made on scientific grounds, it still poses a threat to their health, as Riad states: 'Most non-congenital foot deformities in sports result from poor selection of appropriate footwear'.
(رياض، 1999: 26).

Finding No.(14): **Using naps as a means of recovery:** 46% of runners report that they sometimes take naps as a means of recovery, where rest and relaxation are necessary for the biological compensatory processes of the skin cells to function when rest is insufficient, this leads to a feeling of fatigue, which can cause the body to lose continuity in the performance of its functions.

4-2-3 Presentation and analysis of the results in the light of the third hypothesis:

Table n°(05): represents the results of the questionnaire third axis addressed to the trainers.

Questions	Suggestions	Repeat	Percentage	Calculated k^2	Scheduled k^2	Significance level	Degree of freedom	Statistical significance
15	Always	15	03	02	0.05	5.99	6.7	Significant
	sometimes	25	05					
	Never	60	12					
16	Always	5	01	02	0.05	5.99	16.3	Significant
	sometimes	20	04					
	Never	75	15					
17	Always	00	00	02	0.05	5.99	40	Significant
	sometimes	00	00					
	Never	100	20					
18	Always	00	00	02	0.05	5.99	34	Significant
17	sometimes	15	03					
	Never	85	17					

Table n°**(06): represents the results of the questionnaire third axis addressed to the runners.**

Questions	Suggestions	Repeat	Percentage	Calculated k^2	Scheduled k^2	Significance level	Degree of freedom	Statistical significance
19	Always	50	25	02	0.05	5.99	07	Significant
	sometimes	30	15					
	Never	20	10					
20	Always	78	39	02	0.05	5.99	47.32	Significant
	sometimes	20	10					
	Never	2	01					

21	Always	14	07	02	0.05	5.99	15.16	Significant
	sometimes	58	29					
	Never	28	14					
22	Always	8	04	02	0.05	5.99	17.44	Significant
17	sometimes	36	18					
	Never	56	28					

Source: The researcher, (2021)

Analysis of the results representing the findings of the third axis, through tables n°**(05) and** n°**(06):**

Finding No.(15): **Coaches know runners' diets:** 60% of the coaches confirmed that they do not know what their runners eat at daily meals, although for each period and for each job there is an appropriate diet to maintain the athlete's fitness. Reducing injuries is about providing the athlete with an appropriate diet, in quantity and quality, with its various nutritional and structural elements. (رياض، 1999 :26).

Finding No.(16): **Consult nutritionist trainers on the diets proposed to their runners:** 75% of them answer that they do not consult a nutritionist whereas it is necessary that the nutrition of the athlete is scientifically studied to meet his or her needs and thus maintain the safety of his or her health. This is what Tom and Caja say: "The benefits of physical activity cannot be separated from a suitable and balanced diet, and this can only be achieved through cooperation between researchers, trainers and food production specialists. (Thomas and Caja, 1983: 236)

Finding No.(17): **The presence of a nutritionist in national teams:** 100% of the coaches acknowledged the absence of a nutritionist in national teams, this is what makes the coach carry another responsibility which is to determine the daily meals of the rider in a scientific way.

Finding No.(18): **Giving runners nutritional supplements to make up for lack of energy and inadequate nutrition:** 85% of coaches responded that they resort to giving riders nutritional supplements to fill the gap in meals or for another purpose and without a prescription often and here a question mark is raised on this behaviour, especially in hormonal supplements, causes an imbalance in their genetic pattern, which poses problems and disastrous consequences for their health and social life, not to mention falling under sanctions for steroid use sometimes.

Finding No.(19): **The sensation of thirst is what drives the runner to drink water:** 50% of the runners responded that the sensation of

thirst is what drives them to drink water, which leads to dehydration at the body level and therefore affects muscle contractions and leads to several sports injuries. This is confirmed by (Stéphane and Véronique) "that thirst is an alarm signal for the organism, as its sensation is accompanied by a loss of 1% of body weight, which leads to a 10% decrease in the runner's physical capacities."(Stéphane and Véronique, 2005: 170).

Finding No.(20): **The energy drinks they drink in cold weather are the same in hot weather:** 78% of runners answer that they do not differentiate between the energy drinks given and balanced with the climatic condition, this can lead to sports injury, loss of a quantity of salts and dehydration of the vessels, which is confirmed by Dr. Stephane and nutritionist Veronique in that: "According to the physical law, water is present in the blood in abundance and comes out by osmotic pressure, i.e. from the least concentrated blood. It is not possible for water to flow from the middle to the most concentrated medium, but if sugar is abundant in energy drinks in the intestine, this happens. On the contrary, water leaves the blood in the intestines and the blood vessels dry up. (Stéphane and Véronique, 2005: 175)

Finding No.(21): **The amount of meat and protein of all kinds consumed daily is sufficient:** 58% stated that sometimes only the amount of protein is sufficient to meet the needs of runners, as protein is used for growth and repair of injuries. Cells of the body and lack of sufficient amount would expose the athlete to a group of sports injuries, especially muscular. Not only that, but most of the hormones and enzymes inside the body are protein based and therefore the lack of them reflects the functional and vital balance of the runner.

Finding No.(22): **Runners' interest in morning breakfast in terms of calories and dietary diversification:** We find that 56% of runners do not care at all about breakfast and neglect it, which is supposed to be regular because of the energy it provides to the body at the beginning of the day. Al-Saffar and al: "Breakfast should contain all three sources of dietary energy and it should contain 1500 calories for an athlete who trains once a day." (386 :1990 ،الصفار وآخرون).

4-3 Discussion and interpretation of the results:

After presenting and analyzing the results related to the first hypothesis, which states that the availability of periodic medical follow-up is related to sports injuries among half-distance runners in

Algeria, and through the results of the first axis of the questionnaire, which includes tables n°(01) and n°(02), it was found that there are significant differences of statistical significance in favor of the larger value at the significance level (0.05) and with a degree of freedom (02), as the calculated K^2 was higher than the expected K^2 (5.99) in all the findings from (01 to 08) except for Finding No.(02) only Half-distance runners in Algeria. The lack of interest of athletes in Algeria for a regular medical follow-up and the lack of awareness of the coach for the mandatory medical surveillance is one of the most important reasons for their exposure to numerous sports injuries, and the great shortage of doctors within the team level and the lack of communication between them and the coaches and the quasi lack of sports-medical centers all turn into a lack of necessary sponsorship to the injured runner.

This is in line with the study of (ناصري جمال وآخرون، 2021), where the researchers saw that prevention of sports injuries is a necessary and required issue and the attention of every doctor, coach and athlete himself, so it was better to focus on prevention methods rather than waiting for the runner to get injured, to provide him with the best methods of treatment, as this saves time, effort and money, as well as providing a specialized doctor with all the capabilities and sufficient means to help him or her treat injured athletes in the best possible way.

As for the second hypothesis, which was that the means of recovery and their use are related to sports injuries in runners, through the results presented in tables n°(03) and n°(04), there are statistically significant differences at the level of significance (0.05) and degree of freedom (02) if the tabulated K^2 was (5.99) in all findings of (9-14). This proves the validity of the second hypothesis, as the lack of necessary recovery facilities at the club level in view of the high training volume of the half-distance runner, which exposes him to exhaustion, fatigue and injuries. As for the runner, his knowledge of daily health practices of sufficient sleep, scientific sports shoes that suit him and sun protection tools...etc remains very low.

This is agreed in the study by Rosie Hussein (2011-2012), where he emphasizes the need for recovery means and capabilities in the sports complex that can avoid injuries if properly used and as well as another study published in the Journal of Excellence in the Science and Techniques of Physical and Sports Activities, in which Prof. (غوال عدة وآخرون، 2018) highlighted the effect of using cold plunge pools after intense doses of training to improve the recovery process of players,

as it is one of the most important means of recovery to increase the athlete's efficiency and prevent microscopic injuries.

As for the third hypothesis, which states that dietary habits are related to sports injuries in long-term runners, the results showed through tables n°(05) and n°(06) that there are statistically significant differences in favor of the higher value at the significance level (0, 05) and degree of freedom (02), if the calculated K^2 is higher than the predicted K^2 (5.99) in all findings of (15-22). This proves the validity of the third hypothesis which states that the dietary habits of the runners are related to the sports injury of the half-distance runners in Algeria.

As the diet followed by half-distance runners is still random and does not take into account the scientific basis of the athlete's diet in addition to the lack of knowledge of coaches of the meals consumed by their runners in most cases and the total absence of nutritionists and especially, the attempt to fill the lack of diets by taking food supplements without medical prescription and this poses a threat to the health of the runners and their sporting career. This is what the study (عناني سليم وآخرون، 2021) agrees with.

Exposure to sport injury is a summation of sport practice and all runners confirmed their exposure to sport injury during their sport career and the recurrence of its occurrence in varying proportions.

Therefore, both the periodic medical follow-up and the availability of recovery methods and healthy eating habits of the runner have a direct relationship with the sports injury of half-distance runners in Algeria, which proves the validity of the general hypothesis.

Conclusion:

Through the field study and the analysis of the results obtained in the light of the hypotheses of the study and on the basis of the theoretical study, it was concluded that sports injuries may have become the only obstacle that makes it impossible to reach a high level in one's sport. The aim of this research is to confirm that the basis of sports practice is to maintain the health of the athlete first so that the results come afterwards, where the athlete must be the end, not the means, in the light of the huge development that this field has experienced.

The training process is built on the basis of work and rest and the emphasis on modern training methods and the rationing of training loads must be devoted to the comfort of the runner, the recovery of his

physical, functional and psychological capacities and the preservation of his health.

The researcher focused on the daily health practices that can be normal behaviors accompanying the life of an athlete and that coaches work to acquire this health awareness for their runners from the beginning of their sporting career and that the sport system takes care of all the means and materials and human capacities so that it can be said that there is an education in good health, the athlete is ultimately a member of society who leads a normal life.

The periodic and regular medical follow-up, the means of recovery, and the nutrition of the athlete in Algeria are far from familiar standards. It is not the responsibility of the runner alone or the coach alone, but it is the responsibility of the Algerian Sports System and working as one team.

Recommendations and suggestions:

- Apply theoretical studies and research to reality and exploit them on the field for the benefit of the runner and the coach.
- Set up training centers equipped with the latest means and capacities for optimal recovery.
- Create sports medicine centers throughout the country to care for injured athletes.
- Impose periodic testing by the Anti-Doping Authority on runners regarding the use of nutritional supplements.

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