

ISSN: 2392-5442 ESSN : 2602-540X		<i>Sport system journal</i>
V/11 N/02 Year/2024		<i>International scientific journal published by: Ziane Achour –Djelfa- Algeria</i>
P 210 - 223		<i>Received: 2024-05-19 A ccepted: 2024-09-06</i>

The impact of healthy nutrition on the performance and efficiency of Judo wrestlers

A field study of the MCA Petroleum Sports Club for Judo Senior category (the capital of Algeria)

Amarouche Radhia^{1*}, Mimene Zakaria²

¹University of Algiers3, (Algeria), radhiaamarouche1976@gmail.com

²University of Algiers3, (Algeria), mimene.zakaria@univ-alger3.dz

Abstract:

The study aims to investigate the impact of healthy nutrition on the performance and output of Judo wrestlers. The study sample consisted of 50 senior male and female Judo wrestlers from the Mouloudia Algerian team (MCA) aged between 19 and 30 years.

We found that the senior Judo team of (MCA) relies on healthy meals from various animal and plant sources, as well as milk and its derivatives, to obtain essential energy elements such as sugars or glucose, proteins, fats, and carbohydrates. These nutrients are vital for energy production in the body and are necessary for wrestlers. This sport relies on specific weight categories, requiring wrestlers to maintain their weight to avoid disqualification in official competitions. To prevent health issues such as fatigue and anxiety during dietary periods, wrestlers seek the guidance of a nutrition specialist at the beginning of the sports season and carefully consider a healthy dietary program during general and specific physical preparation. Additionally, wrestlers consume other healthy meals rich in vitamins and minerals to enhance their performance and output.

Keywords: Judo; Healthy nutrition; Performance athletic.

**Corresponding author*



The impact of healthy nutrition on the performance and efficiency of Judo wrestlers

1. Introduction and Research Problem

Sport has become one of the important and prevalent topics in the world recently. It is a mirror that reflects the status of countries diplomatically and their level of modernity. Therefore, there is a strive to research ways to develop and enhance training programs and innovate modern methods for training athletes while considering intensity, load, and physical fitness aspects. This focus is on improving the level of performance and efficiency among athletes in general and Judo wrestlers in particular. This has led to the emergence of some physical problems such as fatigue, extreme exhaustion, and the onset of diseases like anemia, as well as psychological symptoms like anxiety and stress during competitions. This has made sports specialists, whether in the field of sports medicine or nutrition, pay attention to these symptoms affecting athletes.

Sports specialists emphasize the necessity of providing healthy nutrition and monitoring wrestlers before, during, and after competitions because nutrition affects their performance and efficiency. Judo wrestling requires high physical fitness, tactical skills, and psychological aspects for wrestlers to achieve commendable results in international competitions. This necessitates meeting all the necessary conditions through general and specific physical preparation and relying on healthy food that effectively contributes to improving performance and efficiency.

Nutrition specialists, researchers, and global health organizations such as the World Health Organization (WHO) advocate for the improvement of nutrition standards worldwide, highlighting that athletic performance and efficiency are dependent on the quality and quantity of healthy food consumed before, during, and after official competitions. Balanced and regular meals that meet the athlete's calorie needs have a positive impact on both the psychological and physical aspects. Meals rich in energy elements such as glucose, fats, and carbohydrates provide athletes with vitality and enhance their performance and efficiency. Providing necessary proteins is essential for hormone synthesis and secretions within the body, contributing to bone and muscle building processes. (Louh & Asli, 2009, p. 39)

Athletes are in dire need of various vitamins and minerals such as potassium, magnesium, phosphates, and others, as they allow for replenishing what the body loses during metabolic processes, thereby increasing their performance and efficiency. (Kamash , 2010, p. 112)



From the above, the following question arises: Does healthy nutrition affect the performance and efficiency of judo wrestlers from the Mouloudia Club Algiers (MCA)?

2. Defining Concepts and Terminologies

2.1 Healthy Nutrition :It is the provision of the body with sufficient calories and essential nutrients required for organ functions and overall health. (shihab eddine, 2005, p. 13)

2.2 Judo Sport: It is a sport that includes wrestling between two individuals on a limited distance mat known as the tatami. It relies on a special uniform worn by competitors called a judogi. This sport involves three referees and is conducted at a specific time. Judo is one of the most popular sports globally, emphasizing flexibility, speed, and concentration all at once. (Mabed , 1990)

2.3 Athletic Performance: It aims to elevate the player or athlete's level to the best possible degree in their specialized activity through training and practicing sports, enabling them to represent their country in various African, international, and global events. (yahia esawi, 2006)

3. Previous and Similar Study

3.1 The first study: conducted by Nabila Mimouni and others in 2023, titled " Relation between body composition and nutrition in Judo, members of national teams ", The main objective of this descriptive study is to see the nutritional profile of high-level judo wrestlers as well as the main components of the weight body, evaluated according to two preparation periods. We specify that our athletes are all adults, female, practicing high-level judo who represent two categories of weight (heavy and light). In order to better understand the body composition of the sample, we have established a nutritional questionnaire of which we will report the main results.

The judo wrestler has great energy needs. He must choose quality food in sufficient quantities. The total energy of the day will have to be distributed between the fats (25%), proteins (15%) and carbohydrates (60%). For a performance ideally, the food consumed before a competition is important. The sports with weight categories encourage athletes to lose body mass to change categories and increase their chance of success in competition.

A relevant management of weight loss, diet and activity physical activity over several weeks is particularly effective alone to keep the performance capabilities of the athlete. Each sports activity requires a favorable environment for achieving



The impact of healthy nutrition on the performance and efficiency of Judo wrestlers

a good performance. Overall, it is necessary to maintain a good state of "Readiness" and to facilitate the recovery phases between muscle "conditioning" sessions and physiological, to adopt an appropriate diet. Indeed, nutrition allows to potentiate the adaptive capacities of the organism to the effort and to arrive in the best conditions on the day of the competition. The nutritional strategy is the choice of ingested foods while the micro-nutritional strategy concerns the choice of ingested micronutrients, that is to say vitamins, minerals, trace elements... In addition, the presence of a nutritionist within the different national teams is more than necessary. (Mimouni, Zaki, & Mahdad, 2023)

3.2 The second study : A study by Soheil Maryam 2022 titled "the impact of food quantity and quality on improving the performance of athletes from the national team of the combat sport "Fovinam Viadaw" at the Sporting Club in Dar El Beida", classified as seniors. The study raised the following question:

What is the effect of food quantity and quality on the performance of athletes practicing the sport of Fovinam Viadaw?

From this question arose sub-questions. The study formulated hypotheses and aimed to identify the effects resulting from the lack of balance in meal size and quality on athletic performance. It clarified the daily food requirements among athletes. Furthermore, it demonstrated the relationship between food quantity and quality and how they impact athletic performance. In the field procedures, a descriptive-analytical method was followed. Regarding the study population, it consisted of 20 athletes from the national team of the combat sport "Fovinam Viadaw," classified as seniors. As for the study sample, it included 20 athletes distributed by gender and age: 14 males and 6 females, with ages ranging from 20-25 years for 15 athletes, 25-30 years for 3 athletes, and 30-35 years for 2 athletes. Concerning the geographical area, the study was conducted at the Dar El Beida Sports Hall in Algiers, the capital of Algeria. A questionnaire was distributed to the 20 athletes, containing three axes, each consisting of a set of open and closed questions. The statistical tool used involved calculating the frequency of responses to each question, followed by calculating the percentage in two ways: the first for closed and semi-open questions, and the second for optional questions.

The study concluded that nutrition plays a crucial role in achieving success and excellence for athletes, especially in competitive sports. Nutrition is vital in shaping the body structure, supporting the energy systems during physical



exertion, contributing to recovery processes, eliminating fatigue by-products, and restoring energy components. Therefore, nutrition and performance are interrelated, as recent research has shown a relationship between diet and performance. Evidence indicates that consuming carbohydrate-rich foods for several days before endurance competitions improves results. Additionally, consuming glucose during long races helps delay fatigue onset, enhances performance, provided a healthy diet is followed throughout the year in reasonable and appropriate quantities.

4. Methodology

Research Methodology Used: Based on the general question posed, the descriptive method is the most appropriate for answering it.

Research Population, Spatial and Temporal Scope:

For our topic, we used a non-probabilistic purposive sample to obtain accurate results that serve the hypotheses of our research. The study sample consisted of 50 senior athletes, including 35 males aged between 19 and 30 years and 15 females aged between 19 and 28 years, from the Judo team of Mouloudia Club Algiers (MCA) located in the Multisport Hall Mokhtar Arabi El Abiari in Algiers, the capital of Algeria. The questionnaire was distributed to the wrestlers in October 2022, and after collecting and tabulating the data, they were subjected to statistical methods.

5. Research Sample and Selection Method

The research sample consists of 50 athletes in the Mouloudia Club Algiers Judo team, including 35 males aged between 19 and 30 years and 15 females aged between 19 and 28 years, based in the Multisport Hall Mokhtar Arabi El Abiari in Algiers, the capital of Algeria.

Tools and Techniques Used in the Research:

We constructed a questionnaire consisting of 30 questions directed towards the Mouloudia Club Algiers Judo wrestlers (MCA). The questionnaire had three axes, each specific to a particular hypothesis, with indicators derived from theoretical background and previous studies. These indicators were organized into closed and open-ended questions. We also conducted personal interviews with the coaches to further confirm and achieve accurate results.

Statistical Methods Used:

To analyze and interpret the results obtained from the questionnaire administered to the selected sample, we relied on statistical methods. We used the Chi-square



The impact of healthy nutrition on the performance and efficiency of Judo wrestlers

test (chi²) when the data were taken from large independent datasets, a method commonly used in survey studies. The formula for (chi²) is as follows:

$$(\text{chi}^2) = (\text{Observed Frequency} - \text{Expected Frequency})^2 / \text{Expected Frequency}$$

Observed Frequency: Number of responses

Expected Frequency: Total responses to the question divided by the number of categories.

We also used percentages (%) = Number of occurrences × 100 / Total count

Presentation, Analysis, and Discussion of Results:

In light of the research objectives and questions, the researcher conducted statistical analysis, and these results were presented in tables and figures to facilitate the discussion of the results.

Question 01: What are the healthy foods that Judo wrestlers consume before training?

Purpose of Question 01:

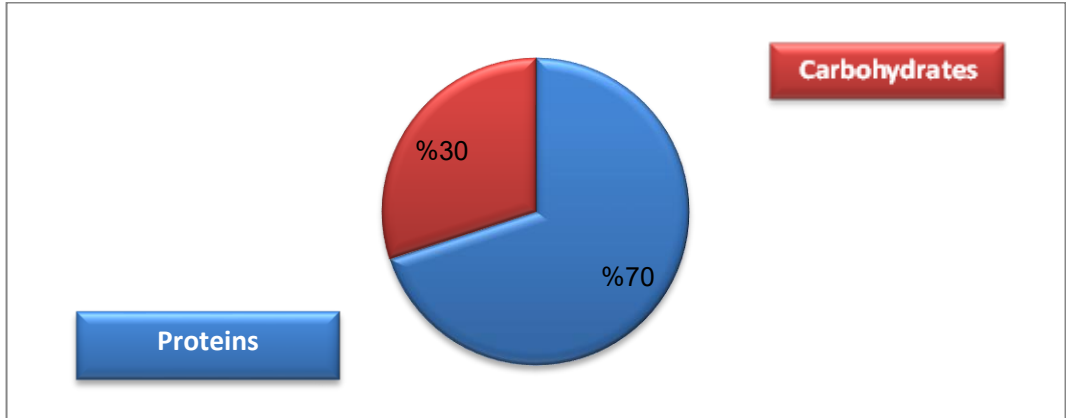
To identify the types of healthy foods consumed by Judo wrestlers before training.

Statistical Table 01. regarding the types of healthy foods consumed by Judo wrestlers before training.

Chi ² Tabulated	Ch ² Computed	Percentage	Repetition	Answer
5.99	20.34	00%	00	Fats
		30%	15	Carbohydrates
		70%	35	Proteins
		100%	50	Total

Source: preparation of researchers, 2023.

A graphical representation of the types of healthy foods consumed by Judo wrestlers at Mouloudia Club in Algeria.



Source: preparation of researchers, 2023.

Reading Statistical Table and Relative Frequency Circle 01:

Through our analysis of the statistical table regarding the types of healthy foods consumed by Judo wrestlers at Mouloudia Club in Algeria, using the Chi-square goodness of fit test, we observed a computed χ^2 value of 29.47, which is greater than the tabulated χ^2 value of 5.99 at a degree of freedom $(1-C) = 2$ and a significance level of 0.05.

This indicates that there is statistical significance, meaning that Judo wrestlers consume healthy foods before training.

- Interpretation:

Through our analysis of the statistical table and the relative circle, we observe a significant percentage of athletes consuming proteins at 44%, while those consuming carbohydrates are at 30%, and those consuming fats at 0%. This is attributed to the dietary regimen they follow to avoid obesity or weight gain.

- Conclusion:

From this, we can conclude that Judo wrestlers in the Mouloudia Club Algerian team follow a dietary regimen to avoid weight gain.

Question 02: What are the dietary meals consumed by Judo wrestlers during the



The impact of healthy nutrition on the performance and efficiency of Judo wrestlers

dietary regimen that contribute to enhancing performance and output before competition?

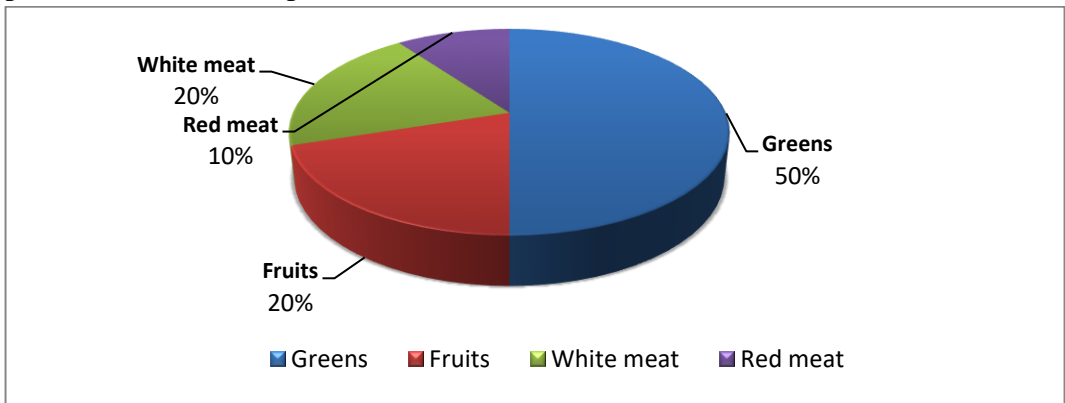
Purpose of Question 02: To identify the dietary meals consumed by the wrestler during the dietary regimen before competition.

Statistical Table 02. regarding the dietary meals consumed by the wrestler during the dietary regimen before competition.

percentage	Sample number	The answer
50%	25	Greens
20%	10	Fruits
20%	10	White meat
10%	5	Red meat
100%	50	Total
112.5		Chi² calculated
7.81		Chi² Tabular

Source: preparation of researchers, 2023.

Relative circle No. 02 regarding the diets that the wrestler eats during the diet period before the competition.



Source: preparation of researchers, 2023.

Reading Statistical Table and Relative Frequency Circle 02:

Through our analysis of the statistical table concerning the dietary meals consumed by Judo wrestlers during the dietary regimen before competition for the Mouloudia Club Algerian team (MCA), using the Chi-square goodness of fit test, we recorded a computed chi² value of 112.5, which is significantly greater than the tabulated chi² value of 7.81 at a degree of freedom (n-1) = 3 and a



significance level of 0.05. This indicates statistical significance, implying that Judo wrestlers consuming dietary meals during the dietary regimen contribute to enhancing performance and output before competition.

Interpretation:

Through our analysis of the statistical table and the relative circle, we observe a high percentage of wrestlers consuming vegetables at 50%, while those consuming fruits are at 20%, white meats at 20%, and red meats at 20%. Red meats account for 5%. This is attributed to the dietary regimen followed by the athletes to maintain their weight. They rely more on plant-based sources such as vegetables and fruits than animal sources. These meals contribute to enhancing their performance and output.

Conclusion:

From this, we can conclude that Judo wrestlers in the Mouloudia Club team rely more on plant-based dietary meals than animal-based sources during the dietary regimen to maintain their desired weight. These meals also contribute to enhancing their performance.

Question 03: Do the dietary meals consumed during general and specific physical preparation contain the following elements?

The purpose of question 03 is to identify the key elements present in the dietary meals.

Statistical Table 03 regarding the nutritional elements found in the dietary meals.

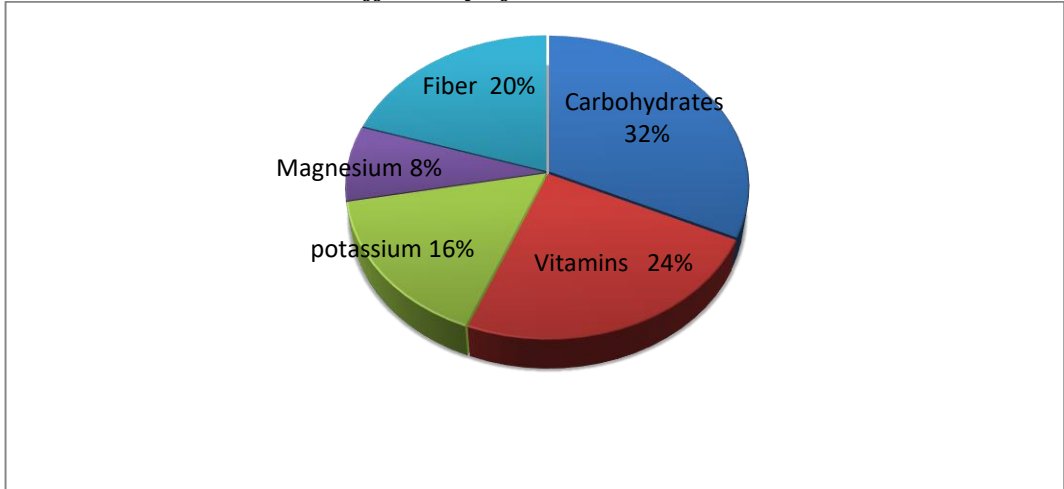
Percentage	Sample number	Answer:
32%	16	Carbohydrates
%24	12	Vitamins
20%	10	Fiber
16%	8	Potassium
8%	4	Magnesium
100%	50	Total
160		Chi² Calculated
9.48		Chi² Tabulated

Source: preparation of researchers, 2023.

Relative circle No. 03 regarding the nutrients contained in diets.



The impact of healthy nutrition on the performance and efficiency of Judo wrestlers



Source: preparation of researchers, 2023.

Reading Statistical Table and Relative Frequency Circle 03:

Through our analysis of the statistical table concerning the nutritional elements consumed by Judo wrestlers for the Mouloudia Club Algerian team (MCA), using the Chi-square goodness of fit test, we recorded a computed χ^2 value of 160, which is significantly greater than the tabulated χ^2 value of 9.48 at a degree of freedom $(n-1) = 4$ and a significance level of 0.05. This indicates statistical significance, implying that Judo wrestlers consume dietary meals containing nutritional elements during general and specific physical preparation.

Interpretation:

From our analysis of the statistical table and the relative circle, we observe a high percentage of wrestlers consuming carbohydrates at 32%, which are a source of energy where chemical transformations occur in the body during physical preparation to produce energy represented by ATP. Those consuming vitamins are at 24%, essential for the athletic body. Those consuming potassium are at 16%, which is involved in muscle chemical reactions. As for wrestlers consuming magnesium at 8%, it helps reduce psychological stress. Those consuming fiber at 20%. The variation in nutritional elements for Judo wrestlers aids in proper general and specific physical preparation.

Conclusion:

From this, we can conclude that Judo wrestlers for the Mouloudia Club team rely

on dietary meals that consider the necessary elements required by athletes.

Question 04: Is there monitoring of the wrestlers by a nutrition specialist?

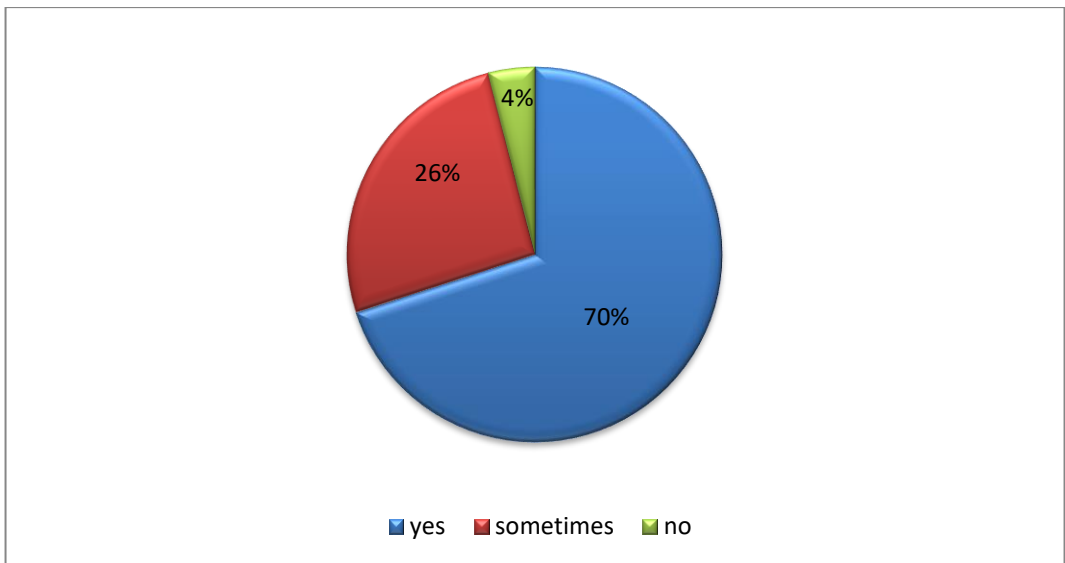
The purpose of question 04 is to determine the monitoring of Judo wrestlers by a nutrition specialist.

Statistical Table 04. regarding the monitoring of Judo wrestlers by a nutrition specialist.

total	sometimes	no	Yes	The answer
50	13	2	35	Sample number
100%	26%	4%	70%	Percentage
56.8				Chi² Calculated
5.99				Chi² Tabulated

Source: preparation of researchers, 2023.

Relative circle No. 04 regarding the follow-up of good wrestlers to the nutritionist



Source: preparation of researchers, 2023.

Reading Statistical Table and Relative Frequency Circle 04:

Through our analysis of the statistical table regarding the monitoring of Judo wrestlers by a nutrition specialist for the Algerian Mouloudia team, using the Chi-square goodness of fit test, we observed a computed chi² value of 56.8, which is greater than the tabulated chi² value of 5.99 at a degree of freedom (1-C) = 2 and a significance level of 0.05. This means there is statistical significance, indicating



The impact of healthy nutrition on the performance and efficiency of Judo wrestlers

that Judo wrestlers are being monitored by a nutrition specialist.

Explanation:

Through our reading of the statistical table and the relative circle, there is a large percentage of athletes who follow up with a nutritionist 70%, those who sometimes follow up 26%, and those who do not follow up with a nutritionist 4%, and this is due to the awareness of athletes of the need to follow the diet with a nutritionist.

The result:

From this, we conclude that the judo wrestlers of the MC Algeria team are following up with a nutritionist so that the diet is not random.

View and analyze the results of the personal interview with the trainers :

The first question: do judo wrestlers take the necessary elements in diets at the stages of general and special physical preparation

The purpose of the question is to find out the compatibility of the quality of diets with the needs of the body at the stages of general and special physical preparation.

6. Analysis and discussion :

The coaches confirmed that the athletes are mostly in the national team and they are aware of the quality of the necessary meals to take, and they are also followed up in the team by a nutritionist and provide them with the necessary elements to eat, represented by sugars found in pastes, proteins found in eggs and fatty meats, vitamins such as vitamin c –b12 and others, mineral salts such as potassium, magnesium and calcium, in addition to drinking water from 3 to 4 liters a day to replace the water lost in the body during sports activity .

We conclude that most athletes of the Melodiya Algiers judo team eat healthy meals that contain the necessary elements to provide the necessary energy for general and special physical preparation.

Question No. 02 is there a nutrition program during dieting periods before and during the competition that increases its performance and payback

The purpose of question 02 is to show the existence of a nutrition program for wrestlers that increases their performance and payoff.

As for the nutrition program, it is necessary to provide it because it has a big role to know the wrestler the weight in which he should compete and what goals are desired from him, and on the other hand, he has to control physical fitness and



weight control because the fight is with the required weights and the wrestler is not limited.

It is necessary to provide a program that cares and serves his performance and payback in training and during competition, and this nutritional program corresponds to the calorie needs of the body and corresponds to the weight and energy needed for the type of activity so that his performance and payback is good during competition and the athlete does not feel tired and exhausted Also during the diet period.

Conclusions :

Through this research, we have reached a set of conclusions, which came as follows: the impact of healthy nutrition on the performance and performance of good wrestlers.

Wrestlers also eat healthy diets during the diet period that contain the necessary elements such as proteins, sugars, fat and various vitamins, represented by vitamin C and B12 and others, in addition, wrestlers ' meals are rich in fiber and carbohydrates in addition to mineral salts such as potassium, magnesium and calcium, from various animal and vegetable sources, and judo wrestlers also take a sufficient percentage of water a day to replace the water lost in the body during periods of physical preparation, whether public or private, and finally we found that the athletes of the Melodiya Algeria MCA team have a nutritionist this allows him to follow the diet program throughout the sports season, which It reflected positively on his performance and payback .

Through the theoretical and applied study, we have found that the MCA judo team is aware of the need to follow the healthy nutrition of wrestlers and be balanced and regular throughout the day, moreover, from various animal and plant sources so that the body can provide the necessary energy to exploit it in sports activity, the judo wrestlers have a follow-up in the quality of food at the beginning of the sports season also take into account the body's calorie needs so that they correspond to the type This is what attracted our attention in this study and the statements made by coaches and wrestlers who spontaneously stated about the healthy nutrition that is followed up during the sports season, which allowed them to walk towards professionalism, and is considered a reservoir for the national team of elite athletes .



The impact of healthy nutrition on the performance and efficiency of Judo wrestlers

References:

- Kamash , L. Y. (2010). *The book of nutrition and sports activity*. Aman: Publishers and distributors.
- Louh, H., & Asli, H. (2009). *Physiology of physical exertion*. oran: university of oran.
- Mabed , M. (1990). *practical guide of judo*. algeirs: national book company.
- Mimouni, N., Zaki, S., & Mahdad, D. (2023). Relation between body composition and nutrition in Judo,. *Sport system journal*, 10(2), 105-123.
- shihab eddine, a. (2005). *The upholstered dictionary*. cairo: Dar Al Fikr for printing, publishing and distribution.
- yahia esawi, m. (2006). *The relationship between some psychological and physiological variables and the level of performance in the sport of judo* . cairo: Al-Azhar publishing house.