



ISSN Print: 2664-7559
ISSN Online: 2664-7567
IJSHPE 2024; 6(1): 117-123
www.physicaleducationjournal.in
Received: 03-02-2024
Accepted: 05-03-2024

Nofel Iyad Mahdi
College of Physical Education
and Sport Sciences, Diyala
University, Iraq

Sajad Naser Awed
College of Physical Education
and Sport Sciences, Wasit
University, Iraq

Hasanain Abas Fathel
College of Physical Education
and Sport Sciences, Wasit
University, Iraq

Corresponding Author:
Nofel Iyad Mahdi
College of Physical Education
and Sport Sciences, Diyala
University, Iraq

International Journal of Sports, Health and Physical Education

The effect of a proposed training program using amino acids on the level of physical and skill performance of fencing players

Nofel Iyad Mahdi, Sajad Naser Awed and Hasanain Abas Fathel

DOI: <https://doi.org/10.33545/26647559.2024.v6.i1b.115>

Abstract

The purpose of this paper is to identify the effect of amino acids on the level of physical and skill performance of fencing players through (preparing a training program using “amino acids” for fencing players, identifying the effect of “amino acids” on the level of physical and skill performance of fencing players. The researcher used the experimental method to suit the nature of the research; the researcher used an experimental design with two pre- and post-measurements for one experimental group. The researcher selected a sample of (28) players from the Iraqi national fencing team. One of the most important results was the presence of statistically significant differences at the level of (0.05) between the average scores of the pre- and post-measurements. The posttest of the research sample was in favor of the average posttest of all physical and skill ability tests under study for fencing players. One of the most important recommendations was the necessity of being guided by the content of the proposed training program due to its positive impact on fencing players.

Keywords: Training program, amino acids, fencing players

Introduction

The process of achieving achievement and reaching podiums can only take place through research and investigation into the minutest matters, which only came about by relying on the sciences of physical education emanating from the medical and other human sciences.

(Abdel-Rahman Zaher 2011) ^[10]. Mentions that the diet and nutritional supplements are among the most important links through which achievement is achieved, as it is impossible to ignore them as they are the only source of energy supply to the body. No matter how complete the forms of preparation for athletes are, they can only be crowned with a diet based on scientific foundations and principles that are compatible with the type of sport practiced, as well as being the basic pillar of the training process. (Zaher, 2011: 280) ^[10]

(Lustyan, J, 2010) ^[18] points out that nutritional supplements are preparations whose goal is to supplement the diet with nutritional substances such as vitamins, minerals, fiber, fatty acids, and amino acids, which may be missing in a person’s diet or may not be consumed in sufficient quantities. Some countries consider dietary supplements as foods, while others consider them as medicines or natural health products (Lustyan 2010: 13) ^[18].

Conditional essential amino acids are known as a group of amino acids that follow non-essential amino acids, in addition to other amino acids, which are not required to be available on a daily basis in the body. They are called that because they are considered essential only in some circumstances. Such as: illness, stress, or injuries; in these situations, the body is unable to manufacture enough of it; Therefore, they must be obtained from food or nutritional supplements, and these acids include: arginine, glutamine, cysteine, tyrosine, proline, glycine, serine, and ornithine. (Peterson, 2005: 42-44) (Ali Jalal Al-Din, 2004) ^[19, 13].

Fencing is one of the most ancient sports, as it occupies an advanced position among individual sports in the world. The reason for this is the high level of excitement and suspense achieved by the game of fencing, and because of the complex nature of fencing, with its physical, tactical, high skill, mental, and mechanical requirements, as it requires specific skills and abilities. In addition, comprehensive in order to achieve a high level of performance, especially during the time of the fencing game and its influential pressures. (Abdel Aziz, 2005: 17) ^[11] (Soudad Fouad Al-Alusi, 2012) ^[8].

Osama Salah Fouad (2002) [4] pointed out that fencing is a high-level sport that is difficult to learn because it requires coordination in the technical style of the armed hand and the movements of the feet. The fencer must control himself with the movements of the opponent, and therefore it requires special physical abilities that differ from other activities. (Fouad, 2002:14) [4].

(Talha Hossam El-Din and others 1997) [9] explained that methods for developing players' preparation require preparation in the tactical, physical, and skill aspects, as any sporting activity whose general framework is determined by (Performances, skills, spaces, game rules), as this development requires a similar development in training methods. Fencing players in the skill, tactical, physical, muscular and psychological aspects to prepare them comprehensively to keep pace with this progress. (Hossam El-Din, 1997: 9) [9].

The researcher believes that there is a weakness in the ability to employ nutritional supplements as an auxiliary factor in developing muscle building with the effort the athlete makes in performing exercises according to the quantities of the nutritional supplement given that are consistent with the athlete's physical ability, weight, and the duration of his practice of this sport in order to reach the best condition that can be benefited from while regulating his intake. Amino acids in a regulated and legal manner.

By informing the researcher of the results of the previous study, such as the study of (Abdulaziz Saeed Al-Mulla 2019) [11], (Ahmed Reda Ramadan *et al.*, 2016) [3], the following became clear.

- Taking amino acids associated with muscular endurance training had a positive effect on some physiological indicators among female badminton players. Emphasis is placed on tests appropriate to the type of nutritional supplement and appropriate to the muscular endurance characteristics targeted by the training.
- Eating a series of amino acids did not positively affect the time of running on a moving belt due to their role in the building process and compensating for damaged body tissues.
- Taking nutritional supplements has a positive effect on some respiratory functions that indicate respiratory efficiency in patients with chronic obstructive pulmonary disease.
- The nutritional supplement (Amino acids) contributed to the development of muscles (The biceps brachii muscle, the triceps brachii muscle, the triceps brachii muscle, the lateral deltoid muscle, the shoulder, and the anterior thigh muscle). Amino acids did not affect the development of the leg muscle.
- There are high rates of taking anabolic steroids and nutritional supplements among those who go to health clubs and bodybuilding centers, which poses a challenge to health decision-makers in countries.

Table 2: Shows the statistical significances of the research sample in the basic variables before the experiment n=28

Variables	Measuring unit	Mean	Median	Std. Deviations	Skewness	kurtosis
Age	Year	19.40	19.00	2.60	0.17	-0.88
Length	Cm	172.30	171.50	5.09	0.01	-1.59
Mass	Kg	70.65	70.50	6.26	0.39	-1.18
Training age	Year	7.30	7.00	1.38	0.06	-0.62

It is clear from Table (2), which concerns the homogeneity of the research sample data in the basic preliminary measurements, that the data for the total research sample is moderate, not dispersed, and characterized by a normal

Research objective

- Preparing a training program using (Amino acids) for fencing players.
- Identifying the effect of (Amino acids) on the level of physical and skill performance of fencing players.

Research hypotheses

- There are statistically significant differences between both the pre- and post-measurements of the experimental group in the level of physical performance of fencing players in favor of the post-test.
- There are statistically significant differences between both the pre- and post-measurements of the experimental group in the level of skill performance of fencing players in favor of the post-test.

Research methodology and field procedures

Research Methodology

The researcher used the experimental method to suit the nature of the research, and the researcher used an experimental design with two measurements, pre- and post-test, for one experimental group.

Community and sample research

The research community includes (44) players from the Iraqi national fencing team. The size of the research sample is (28) players and is divided into (16) players to conduct the exploratory study, and (12) players as a basic sample who were chosen by a simple random method from the Iraqi national team players. To duel

Table 1: Shows the numerical distribution of the research sample.

Classification	Number of players	Percentage
Exploratory study	16 players	57.14%
Basic study	12 players	42.86%
Total number of sample	28 players	100%

Sample selection specifications:

- Registered with the Iraqi Fencing Federation
- The age stage: Youth under (21) years old
- Their training age should not be less than (5) years
- They participated in some local and international tournaments.
- Their approval to implement the proposed training program under discussion

Statistical description of the research sample

The basic variables of the sample (Under study) were measured in the variables (age, height, weight, training age) in order to control the variables that may affect the research procedures, and the following table (2) shows this.

distribution for the sample, as the values of the skewness coefficient range from (-0.17 to 0.39). This value is close to zero, and the coefficient of flatness ranged between (-1.59 to -0.62). This means that the fluctuation of the normal curve is

considered acceptable and on average and not fluctuating up or down, which confirms the similarity of the members of the research group in the initial variables before the experiment.

Data collection tools and means

Devices and tools used in the research

By reviewing many references and similar studies, the researcher arrived at the devices and tools that contribute to completing the research procedures and achieving its goals, which are:

- Rest meter to measure the total length of the body to the nearest cm.
- A calibrated medical scale to measure weight to the nearest kilogram.
- Medicine balls
- Measuring tape included
- Blaster
- Fencing suit - Fencing masks - Fencing gloves - Sports shoes

- Weapons (Foil weapon)
- Electronic stopwatch.
- Goal boards – hung on the wall.

Measurements and tests used in research

The researcher conducted a reference survey of references, scientific research, and previous studies, such as the studies of (Abeer Dakhel Al-Salami,2019) [12], (Abdulaziz Saeed Al-Mulla, 2019) [11], (Jaafar Fares Al-Arjan, 2016) [5], (Talha Hossam El-Din and others, 1997) [9], (Hasan, B. B. 2023) [6] (Sowers S., A Primer On Branched Chain Amino Acids, 2009) [20] (Van Nieuwenhoven MA, Brummer RM, Brouns F, 2000) [21] in order to determine the physical and skill tests, which were used. With (7) tests to measure the physical abilities of fencing players, as well as (2) tests to measure the skill level, the researcher arrived at the following tests:

Physical tests

Table 3: Shows the physical tests

Physical abilities	Tests	Measuring unit
Kinetic speed	Run in place test for fifteen seconds	Count
Distinctive strength of speed of the arms	Flexion and extension test of the arms from the prone position	Count
Distinctive strength of speed of the legs	Partridge test for distance within (10) seconds	Meter
Explosive strength of the arms	Medicine ball throwing test	Meter
Explosive strength of the two legs	Stability broad jump test	Cm
Grip strength	Grip strength test	Degree
Speed endurance of the armed arm	Flexion and extension test of the armed arm (30) seconds	Count

Skill tests

- Accuracy (touch shot accuracy test)
- Straight attack

Exploratory study

The exploratory study was conducted in the period from August 13, 2023 to August 20, 2023, on the same sample as the first exploratory study and outside the basic sample. Its purpose was to calculate the scientific coefficients of the tests (Validity - reliability).

Second exploratory study aims to

Verifying the scientific coefficients (validity - stability) of the tests under study, and this is shown in Table (4, 5).

Results of the second exploratory

The validity coefficient was found by comparing the two sides. Table (4) shows this Scientific transactions for physical and skill tests for fencing players:

Validity

To find the validity coefficient for the physical and skill tests under research, the researcher used discriminant validity using peripheral comparison by calculating the value of the average differences between the upper and lower quartiles of the results of the survey sample, which numbered (16) players from the research community and outside the main research sample, and Table (4) shows this.

Table 4: Shows the significance of the differences between the highest and lowest quartiles to find discriminant validity in the tests under investigation n=16

Physical abilities	Tests	Measuring unit	Highest quartiles n=4		Lowest quartiles n=4		Arithmetic mean of difference	T value
			Arithmetic mean	Standard deviation	Arithmetic mean	Standard deviation		
Kinetic speed	Run in place test for fifteen seconds	Count	16.15	13.54	11.32	9.84	4.83	4.84*
Distinctive strength of speed of the arms	Flexion and extension test of the arms from the prone position	Count	9.00	15.80	4.95	12.07	4.05	5.45*
Distinctive strength of speed of the legs	Partridge test for distance within (10) seconds	Meter	15.69	20.64	3.85	14.05	11.84	7.63*
Explosive strength of the arms	Medicine ball throwing test	Meter	6.65	17.98	4.40	14.65	2.25	3.78*
Explosive strength of the two legs	Stability broad jump test	Cm	210	40.20	145	35.64	65	9.02*
Grip strength	Grip strength test	Degree	41.32	1.97	30.85	0.91	10.47	6.01*
Speed endurance of the armed arm	Flexion and extension test of the armed arm (30) seconds	Count	30.05	3.64	21.80	2.31	8.25	5.11*
Accuracy (Touch shot accuracy test)	Count	8.00		1.08	4.65	0.52	3.35	4.97*
Straight attack	Degree	7.75		1.90	4.30	0.63	3.45	3.34*

The tabular (t) value at a significance level (0.05) = 3.182 * sig

It is clear from Table (4) that there are statistically significant differences between the highest quartiles and the lowest quartiles in the physical and skill tests, where the calculated (t) value ranged between (3.78: 9.02), which is greater than the tabulated (t) value at a significance level of 0.05, which indicates the validity of the tests.

Table 5: Shows the stability coefficient by finding the correlation between the first application and reapplication in the tests under study (n=16)

Physical abilities	Tests	Measuring unit	First application		Re-application		T value
			Arithmetic mean	Standard deviation	Arithmetic mean	Standard deviation	
Kinetic speed	Run in place test for fifteen seconds	Count	13.65	11.23	13.05	11.19	0.84*
Distinctive strength of speed of the arms	Flexion and extension test of the arms from the prone position	Count	6.15	13.94	6.00	14.05	0.88*
Distinctive strength of speed of the legs	Partridge test for distance within (10) seconds	Meter	11.25	17.88	11.20	17.72	0.87*
Explosive strength of the arms	Medicine ball throwing test	Meter	4.40	15.97	4.30	16.08	0.81*
Explosive strength of the two legs	Stability broad jump test	Cm	175	37.64	180	36.85	0.76*
Grip strength	Grip strength test	Degree	35.00	0.61	35.10	0.81	0.89*
Speed endurance of the armed arm	Flexion and extension test of the armed arm (30) seconds	Count	24.60	2.99	24.30	2.86	0.86*
Accuracy (Touch shot accuracy test)		Count	6.54	0.91	6.60	1.03	0.93*
Straight attack		Degree	5.80	0.99	5.70	1.15	0.90*

The tabulated (R) value at a significance level (0.05) = 0.482 * sig

It is clear from Table (5) that there is a statistically significant relationship between the first application and re-application in the physical and skill tests, where the calculated (t) value ranged between (0.76: 0.93), which is greater than the tabular (t) value at a significance level of 0.05, which indicates the stability of the tests under consideration.

Building and rationing the training program

Before developing the training program, it was necessary to define its goal, which is to identify the principles that are followed when developing the training program.

Program goal

The training program aims to identify the effect of amino acids on the level of physical and skill performance of fencing players by using exercises with amino acids.

Training program content

The researcher applied the program regularly during the days of the week after distributing it at (3) training units per week, where the members of the research sample were trained on days (Saturday - Monday - Wednesday), as explained as follows:

- Number of weekly training units: 3 units.
- Duration of the program per week: 8 weeks.
- Training unit time in minutes: 90 minutes.
- Total time of the program: (2160) minutes based on the number of units in unit time.
- Training method: Interval, high intensity and repetition.
- Program load: from medium to maximum.
- Load formation: 1/1, i.e. a medium unit and another high or less than high unit.
- Percentage of load intensity: from 85 to 100%.

Doses of amino acids used in the program

The supplement required for the research sample, represented by amino acids, was determined because it is one of the essential amino acids that the body derives from external food

Stability

To find the reliability coefficient for the physical and skill tests, the researcher used the application and re-application method on the same sample of the exploratory study (16) players, where the tests were re-applied again a week after the first application to determine the correlation coefficient between the first and second application for the exploratory sample under study, as shown in Table (5).

and which the body cannot produce on its own except in a small portion that is not sufficient for the requirements of the physical effort exerted by the fencing players.

The nine essential amino acids are (Histidine, isoleucine, leucine, lysine, methionine, phenylalanine, threonine, tryptophan, and avelline). These acids are needed by the fencer because high effort during training leads to the consumption of many protein components represented by the amino acids stored within the fibers. Muscle.

Thus, the task of the amino acids that were addressed by the research group is to reconstitute the amino acids within the muscle fibrils after the high physical effort of the fencing players.

Amino acids were used by the research sample under the direct guidance and supervision of the researcher

The instructions of the company that produces amino acids (Kevin Levrone) were adhered to in all their details, in terms of:

- Dosing period: which continued for 8 weeks throughout the study period
- Quantity of daily doses: The doses were given according to the weights of the players, which were divided into two levels according to the weights of the players, and this is shown in Table (3-7)
- Timings for taking doses: The players were given the dose 30 minutes after exercise, as this is the timing that gives compensatory efficiency to complete the process of building amino acids within the fibrils.
- The players were given doses on training days as well as on rest days, on a daily and continuous basis throughout the duration of the program (8 weeks).
- The players were instructed to drink more water before, during and after taking amino acids in order to maintain the functioning of the functional systems in the body, especially the kidneys, and this was stated in the instructions of the producing company.

- The number of calories consumed by the experimental group was controlled, amounting to (3500) calories per day, except for the amino acids that were used.
- According to the instructions of the producing company, (5 ml) was given to players whose weight ranged between (60 - 75) kg, and (6 ml) was given to players

whose weight ranged between (75 - 90) kg. The researcher chose these two levels due to the homogeneity of the research sample in weight, and the researcher chose those doses prescribed for each weight based on the requirements of the producing company.

Table 6: Shows the amount of amino acids consumed by the experimental group according to the weights of the players

Number of experimental group	Player weights	Dosages of amino acids	Duration of use of acids	Timing of using acids
8 players	60 – 75 kg	5 ml	8 weeks	30 minutes after exercise
	75 – 90 kg	6 ml		

Basic study

The basic study was conducted from 8/21/2023 to 10/25/2023, and it will be conducted

Researcher explains this as follows

- **Pre-measurement:** Pre-measurements were conducted in the period from 21/8/2023 to 22/8/2023 for the variables under study on the members of the research sample, which numbered (8) players. The tests were conducted at the Baghdad Club in Baghdad Governorate and lasted two days (a day to measure the physical tests). (A day to measure skill tests). Physical tests and skill tests include a pre-measurement.
- **Program application:** The proposed training program was applied to the experimental group, which consisted of (8) players. The proposed training program was implemented over a period of 8 weeks, from 21/8/2023 to 25/10/2023, at a rate of (3) training units per week on the sample. Basic (experimental group).
- **Post-measurement:** Post-measurements of the variables under study were conducted on members of the research sample in the period from 24/10/2023 to 25/10/2023, and

the tests were conducted at the Baghdad Club in Baghdad Governorate, with (8) weeks of implementing the training program and (24) training units. It lasted for two days (a day to measure physical tests) (a day to measure skill tests)

Statistical treatments used in the research:

- Arithmetic mean.
- Standard deviation.
- The mediator.
- Skewness coefficient.
- Kurtosis coefficient.
- T-test
- Pearson correlation coefficient
- Repetitions and percentage.

Results and discussion

Presenting and discussing the results of the first hypothesis, which states: “There are statistically significant differences between both the pre- and post-measurements of the experimental group in the level of physical performance of fencing players in favor of the post-measurement.”

Table 7: Shows the significance of the statistical differences of the t-test between the pre- and post-measurements of the experimental group in the physical tests of the fencing players (n = 8)

Physical abilities	Tests	Measuring unit	Pre-test		Post-test		T value	Level Sig
			Arithmetic mean	Standard deviation	Arithmetic mean	Standard deviation		
Kinetic speed	Run in place test for fifteen seconds	Count	13.80	1.50	18.90	1.63	4.59	0.00
Distinctive strength of speed of the arms	Flexion and extension test of the arms from the prone position	Count	6.30	0.89	9.25	1.09	7.89	0.00
Distinctive strength of speed of the legs	Partridge test for distance within (10) seconds	Meter	11.20	1.02	19.80	0.83	4.63	0.00
Explosive strength of the arms	Medicine ball throwing test	Meter	4.35	1.25	6.10	1.69	3.90	0.00
Explosive strength of the two legs	Stability broad jump test	Cm	181	1.05	205	0.87	5.87	0.00
Grip strength	Grip strength test	Degree	34.50	2.95	44.60	2.84	12.36	0.00
Speed endurance of the armed arm	Flexion and extension test of the armed arm (30) seconds	Count	24.05	1.81	32.90	2.36	7.94	0.00

The value of (t) at the significance level (0.05) = 2.365

It is clear from the results of Table (7)

There are statistically significant differences at the level of (0.05) between the average scores of the pre- and post-measurements of the experimental group in favor of the average of the post-measurement in all physical tests for the fencing players, where the calculated “t” value ranged between (3.90: 12.36).

This is confirmed by the results of the study of (Mohamed Hassan Mohamed, Mohamed Abdel Razek Taha, 2022) [15] that using compound exercises with a supplement of saturated amino acids and antioxidants within a training program contributes to the development of maximum strength and

strength characterized by speed, as well as improving the digital level and fatigue indicators better than compound exercises. Only, the use of nutritional supplements (BCAAs and antioxidants) leads to a delay in the appearance of fatigue in players during training.

The results of the study by (Abdulaziz Saeed Al-Mulla 2019) [11] (Abu Al-Ala Ahmed Abdel Fattah, 2003) indicate that eating a chain of amino acids did not positively affect the running time on a moving belt due to their role in the building process and compensating for damaged body tissues, as they are used for energy after all other sources have been exhausted. Eating a chain of amino acids reduces Muscle damage without preventing it.

Table 8: Shows the percentage of improvement between the pre-measurement and the post-measurement for the experimental group in the physical tests of the fencing players.

Physical abilities	Tests	Measuring unit	Pre-measurement	Post-measurement	Arithmetic mean of difference	Improvement percentage
Kinetic speed	Run in place test for fifteen seconds	Count	13.80	18.90	5.1	%36.96
Distinctive strength of speed of the arms	Flexion and extension test of the arms from the prone position	Count	6.30	9.25	2.95	%46.83
Distinctive strength of speed of the legs	Partridge test for distance within (10) seconds	Meter	11.20	19.80	8.6	%76.79
Explosive strength of the arms	Medicine ball throwing test	Meter	4.35	6.10	1.75	%40.23
Explosive strength of the two legs	Stability broad jump test	Cm	181	205	24	%13.26
Grip strength	Grip strength test	Degree	34.50	44.60	10.1	%29.28
Speed endurance of the armed arm	Flexion and extension test of the armed arm (30) seconds	Count	24.05	32.90	8.85	%36.80

It is clear from Table (8) regarding the percentage of improvement between the pre-measurement and the post-measurement of the experimental group in the physical tests of the fencing players that the percentage of improvement between the pre-measurement and the post-measurement for the experimental group ranged between (13.26% to 76.79%).

Presenting the results of the second hypothesis, which states

“There are statistically significant differences between both the pre- and post-measurements of the experimental group in the level of skill performance of fencing players in favor of the post-measurement.”

Table 9: Shows the significance of the statistical differences of the t-test between the pre- and post-measurements of the experimental group in the physical tests of the fencing players (n = 8)

Variables	Measuring unit	Pre-test		Post-test		T value	Level Sig
		Arithmetic mean	Standard deviation	Arithmetic mean	Standard deviation		
Accuracy (touch shot accuracy test)	Count	6.45	2.20	8.50	2.03	10.63	0.00
Straight attack	Degree	5.70	1.84	8.10	2.05	12.39	0.00

The value of (t) at the significance level (0.05) = 2.365. It is clear from the results of Table (9) that there are statistically significant differences at the level of (0.05) between the average scores of the pre-measurements and the post-measurements of the experimental group in favor of the average scores of the post-measurements in all skill tests for the fencers, where the calculated “t” value ranged between (10.63: 12.39). The results of (Abeer Dakhel Al-Salami, 2019) [12] confirmed that taking amino acids associated with muscular endurance training had a positive effect on some physiological

indicators among female badminton players. Emphasis is placed on tests appropriate to the type of nutritional supplement and appropriate to the muscular endurance characteristics targeted by the training (Hasan. 2023) [6]. The results of the study by (Muhammad Badiwi Bani Melhem, 2019) [14] confirm that taking creatine has a positive effect in raising the level of testosterone. Taking creatine has a positive effect in improving running time in general and for 800m athletes in particular (Hoffman JR, Maresh CM, Newton RU, *et al.*, 2002) [16].

Table 10: Shows the percentage of improvement between the pre-measurement and the post-measurement for the experimental group in the skill tests of the fencing players.

Variables	Measuring unit	Pre-measurement	Post-measurement	Arithmetic mean of difference	Improvement percentage
Accuracy (Touch shot accuracy test)	Count	6.45	8.50	2.05	%31.78
Straight attack	Degree	5.70	8.10	2.4	%42.11

It is clear from Table (10) regarding the percentage of improvement between the pre-measurement and the post-measurement of the experimental group in the skill tests of fencing players that the percentage of improvement between the pre-measurement and the post-measurement of the experimental group ranged between (31.78% to 42.11%).

Conclusions and Recommendations

Conclusions

According to the research objectives and hypotheses, within the limits of the research sample and the methodology used, and based on the statistical treatment and the results indicated, the researcher reached the following conclusions:

- There are statistically significant differences at the level of (0.05) between the average scores of the pre-measurements and the post-measurements of the

research sample in favor of the average scores of the post-measurements in all physical ability tests under study for fencing players.

- There are statistically significant differences at the level of (0.05) between the average scores of the pre-measurements and the post-measurements of the research sample in favor of the average scores of the post-measurements in the skill tests under study for the fencing players.
- The proposed training program using (amino acids) has a positive impact on the level of physical abilities, as the improvement rate ranged between (13.26% to 76.79%) among fencing players.
- The proposed training program using (amino acids) has a positive impact on the level of skill performance, as the

improvement rate ranged between (31.78% to 42.11%) among fencing players.

Recommendations

Based on what the results indicated and within the limits of the conclusions possible to be reached, the researcher recommends the following:

- Be guided by the content of the proposed training program due to its positive impact on fencing players.
- Using amino acid products to improve the skill performance of fencing players
- It is necessary to work to increase the level of health and security control over fitness centers to limit the use of nutritional supplements without licenses.
- The necessity of having a doctor specialized in athletes' nutrition to prescribe appropriate nutritional supplements for players in fitness centers.

References

1. Ibrahim Nabil Abdel Aziz. The Technical Foundations of Fencing. 3rd ed. Cairo: Dar Al-Fikr Al-Arabi; c2005.
2. Abu Al-Ala Ahmed Abdel Fattah. Physiology of Training and Sports. In: Reference Series in Physical Education and Sports. 1st ed. Cairo: Dar Al-Fikr Al-Arabi; c2003.
3. Ahmed Reda Ramadan, Raed El Metwally Ali, Ihab Ahmed Mansour. The effectiveness of a proposed sports program and some food supplements on some respiratory functions for patients with chronic obstructive pulmonary disease. Scientific Journal of Physical Education and Sports Sciences. 2016;(27): Faculty of Physical Education, Mansoura University.
4. Osama Salah Fouad. "Edge Fencing." Unpublished memoirs. Part 2. Banha: College of Physical Education for Boys, Banha University; c2002.
5. Jaafar Fares Al-Arjan. Dietary habits and the prevalence of taking nutritional supplements and anabolic steroids among participants in fitness and bodybuilding centers in Jordan. Journal of Psychological and Psychological Sciences. 2016;17(1): Bahrain University.
6. Hasan BB. The Effect of Preventive Exercises And Electrical Stimulation On Developing Muscle Strength And Range Of Motion To Reduce Wrist Joint Injuries In Handball Players. Wasit Journal of Sports Sciences. 2023;13(1):10-34. <https://DOI.org/10.31185/wjoss.375>
7. Hasan B, Hilal E. Rehabilitation exercises and a specially designed device (Laser Balance) and their effects on muscle strength, range of motion, and motor balance for football players after undergoing anterior cruciate ligament surgery. Wasit Journal of Sports Sciences. 2023;16(3):10-34. <https://DOI.org/10.31185/wjoss.369>
8. Soudad Fouad Al-Alusi. Sports stimulants and nutritional supplements. Amman: National Library; c2012.
9. Talha Hossam El-Din and others. Scientific Encyclopedia in Sports Training. 1st ed. Cairo: Al-Kitab Publishing Center; c1997.
10. Abdel-Rahman Zaher. Encyclopedia of Sports Physiology. Cairo: Al-Kitab Publishing Center; 2011.
11. Abdulaziz Saeed Al-Mulla. The effect of taking BCAA amino acids on some biochemical indicators resulting from physical effort. Scientific Journal of Physical Education and Sports Sciences. 2019;(83): Faculty of Physical Education for Boys, Helwan University.
12. Abeer Dakhel Al-Salami. The effect of taking amino acids associated with muscular endurance training in developing some physiological indicators for badminton players. Journal of the College of Physical Education. 2019;(3): University of Baghdad.
13. Ali Jalal Al-Din. Physiology of Physical Education and Sports Activities. 2nd ed. Arab Center for Publishing; c2004.
14. Muhammad Badiwi Bani Melhem. The effect of creatine supplements on hormones derived from amino and fatty acids and the 800 m running time among middle-distance runners. Master's thesis. Yarmouk University, Faculty of Physical Education; c2019.
15. Mohamed Hassan Mohamed, Mohamed Abdel Razek Taha. The effect of using combined exercises with a supplement of saturated amino acids and antioxidants on some indicators of physical achievement, nitrogen balance, and muscle damage among young lifters under 17 years of age. Journal of Physical Education Research. 2022;(145):73: Faculty of Physical Education for Boys, Zagazig University.
16. Hoffman JR, Maresh CM, Newton RU, *et al.* Performance, biochemical, and endocrine changes during a competitive football game. Med Sci Sports Exerc; c2002.
17. Lustyan J. The Nutritional Supplement Guide. Copyright January by Life Extension Foundation Buyers Club, Inc.; c2010.
18. Pizza FX, Peterson JM, Bass JH, *et al.* Neutrophils contribute to injury and impair its resolution after lengthening contractions in mice. J Physiol (Lond); c2005.
19. Sowers S. A Primer on Branched Chain Amino Acids. Huntington College of Health Sciences Literature Education Series on Dietary Supplements; c2009.
20. Van Nieuwenhoven MA, Brummer RM, Brouns F. Gastrointestinal function during exercise: comparison of water, sports drink, and sports drink with caffeine. J Appl Physiol; c2000.