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Dr. Mona Hamid Jassim

Ministry of Education, Second
Rusafa Education, Iraq

Dr. Rami Salman Akab

Physical Education and Sports
Sciences University of Kufa, Iraq

Dr. Salman Akab Sarhan

Professor, Physical Education
and Sports Sciences University of
Kufa, Iraq

The effect of special exercises on the development of some physical abilities and biochemical elements of young Kyushinkai karate players

Dr. Mona Hamid Jassim, Dr. Rami Salman Akab, Dr. Salman Akab Sarhan

Abstract

The problem of the research was that the researchers noticed deficiencies in some of the physical capabilities of the young Kyushinkai karate players, so it was necessary to work on developing these abilities through some special exercises in a way that works to achieve the requirements of physical and functional development of the players. The most important research objectives are to prepare special exercises to develop some physical abilities and biochemical elements of young Kyushinkai karate players. The current research community consists of Kyokushinkai youth karate players, men from Baghdad governorate clubs weighing less than (55 kg), and a sample of (26) was selected, as the research community was divided into two groups, control and experimental, in a simple random way, with (11) players for each group. The most important conclusions are The development of the level of the experimental group in motor abilities (motor speed, strength characterized by speed) as a result of the application of special exercises, and the most important recommendations were the need to apply the special exercises applied in the research to develop and teach the research variables.

Keywords: Physical abilities, biochemical elements, Kyushinkai karate

1. Introduction

The planning of the training process must include all physical, functional, skill and psychological aspects that are considered one of the most important foundations on which the training process is built to reach the degree of integration required to develop physical and functional capabilities of the youth of the youth of the youth of the youth that aims to raise the level of players' performance at the best levels of During the correct implementation of the programs and serious exercises to develop these capabilities that work to develop the physical and motor capabilities they have to accomplish the skill and individual planning duties, therefore, players for the youth of the youth should enjoy a high physical possibility to implement various skillful movements and duties that require tolerance in the stadium, and the crowding and friction. And competition during the fight requires a movement speed, and that the implementation of the skill, the offensive and individual defensive plans, hence the importance of research in preparing special exercises to develop some physical capabilities and biochemical elements for the players for the youth of the youth.

2. Research problem

Special exercises are very important in all collective and individual sporting events, including martial arts activities, as they are one of the most important means that work to develop physical, functional and skill capabilities for players, especially young people from them, with the aim of creating a competitive environment similar to the reality of play, and since researchers noticed shortcomings in Some of the physical capabilities of the youth of the youth Karati, the youth of the youth, had to work to develop these capabilities through some special exercises in a way that works to achieve the requirements of physical and functional development among the players.

Corresponding Author:

Dr. Mona Hamid Jassim
Ministry of Education, Second
Rusafa Education, Iraq

3. Research objectives

- Prepare special exercises for the development of some physical capabilities and biochemical elements for the young men of the shell.
- Learn about the effect of exercises, especially in the development of some physical capabilities and biochemical elements of the youth of the Youshakai youth in the experimental group members.
- Learn about the differences between members of the control group and the experimental group of some physical capabilities and the biochemical elements of the players for the youth of the youth.

4. Research hypotheses

- There is no effect for exercises, especially in developing some physical capabilities and biochemical elements of the young Kioskai Karthay Kratia among the members of the experimental group.
- There are no differences between the members of the control group and the experimental group in some physical capabilities and the biochemical elements of the players for the youth of the youth.

5. Determination of terms

- The kinetic speed: It means performing a movement or several movements arranged in the least possible time (Abda and Hammad, 1994, p. 69) [3].
- The strength that is characterized by speed: It is the ability of the muscles to resist fatigue when performing loads without maximum or exclusive, as the body depends when performing such loads on the resulting energy through the anaerobic anaerobic work (Abda and Hammad, 1994, p. 89) [3].
- Sodium is a chemical component whose symbol NA) and its atomic (11) and the element in the periodic table belongs to the group of alkaline metals as the second elements of the first group and within the elements of the third cycle of sodium, a soft, silver -white metal, characterized by its great chemical activity, it interacts in the air and burns with a yellow flame, and it is also that it

is Very interacting with water and air moisture.

- Potassium is a chemical component (K) and its atomic (19). The element in the periodic table belongs to the group of alkaline metals, as it is the third element of the first group, as it falls within the elements of the fourth session. Potassium is a silver white metaphor, and it is sufficiently soft.

6. Research Approach

The researchers used the experimental curriculum in the style of the control and experimental groups with two tribal and post tests for its suitability for the nature of the research problem.

7. Research community and sample

The current research community was identified with Kyokushinkai youth karate players, men from the Baghdad governorate clubs, weighing less than (55 kg), and a sample of (26) was selected, as the research community was divided into two groups, control and experimental, in a simple random way, with (11) players for each group, as the group was exposed The experimental group refers to the independent variable, which is the special exercises, while the control group continues with the training followed by the trainer. The sample of the exploratory experiment was (4) players. Table (1) shows the division of the research community:

Table 1: Shows the division of the research community

The group	The number	Percentage
control	11	42.3%
Experimental	11	42.3%
Exploratory experience	4	15.3%
the total	26	100%

Then the researchers homogenized the two research groups in the variables affecting the dependent variable, as shown in Tables (2) and (3):

Table 2: Shows the homogeneity of the control group members

Variants	Measuring unit	S	Mediator	P	Skewness	Indication
Body length	Poison	156.2	156	4.9	0.12	Homogeneous
Body weight	Kg	53.5	53	2.2	0.68	Homogeneous
The age	Year	18.21	18	3	0.21	Homogeneous

Table 3: Shows the homogeneity of the experimental group members

Variants	Measuring unit	S	Mediator	P	Skewness	Indication
Body length	Poison	156.4	156	4.6	0.26	Homogeneous
Body weight	Kg	53.6	53	2.5	0.72	Homogeneous
The age	Year	18.25	18	2.8	0.08	Homogeneous

Then the researchers carried out the process of equivalence between the two research groups in the same variables, as

shown in Table (4):

Table 4: Shows the equivalence of the two research groups

Variants	Lonliness	The control group		Experimental group		Value(v) Calculated	Level Indication	The difference
		S	P	S	P			
Kinetic speed	Number	18.03	0.611	17.34	0.32	1.76	0.89	Non-Moral
Distinctive strength with speed	Number	13.03	0.287	13.06	0.12	1.56	0.76	Non-Moral
Sodium	MI	133.2	2.3	134.4	0.56	1.94	0.78	Non-Moral
potassium	MI	3.22	0.19	3.78	0.65	1.98	0.69	Non-Moral

It appears from Table (4) that the values of (T) calculated for all variables were not significant, as the values of the level of significance. It was greater (0.05), which indicates the equivalence of the two research groups.

8. Determining the physical abilities and biochemical elements as variables for the research: The researchers identified the most important physical abilities (motor speed, strength characteristic of speed) and biochemical elements (sodium, potassium) for young Kyokushinkai players, which represent the dependent variables through which we can reveal the effect of the independent variable (Special exercises).

9. Determining the necessary tests and measurements for the research variables: In order to test the research variables, the physical abilities (motor speed, strength characterized by speed) and the biochemical elements (sodium, potassium), the researchers selected the appropriate tests from scientific sources and previous studies, which are:

➤ **The first test:** running in place (Hassanin, 2001, p. 292)

Purpose of the test: to measure motor speed.

Equipment used: stopwatch, high jump stand, rubber thread.

Performance specifications: the tester stands in front of the rubber thread tied to the two high jump legs, the height of the rubber thread off the ground is equal to the knee of the tester when he takes the half-standing position, one of the thighs is parallel to the ground when he hears the start signal, the tester runs in place at maximum speed so that he touches the thread with his knee in all stages of running In place, the arbitrator counts the number of steps taken by the tester in (15 seconds), provided that the count is on the right foot only.

Recording: The laboratory records the number of times the right foot touches the ground in the prescribed time.

The second test: consecutive jumps in place (Hassanin, 2001, p. 309)

The purpose of the test: measuring the muscular capacity of the muscles of the two legs (strength characteristic of speed).

Tools used: stop watch, draw a circle with a diameter of two feet on the ground.

Performance specifications: The tester stands inside the circle and upon hearing the start signal, the tester jumps in place as many times as possible within (15 seconds) and with both feet.

Recording: records the number of jumps that he made during the specified period (15 seconds).

The third measurement: measuring the percentage of sodium ion (Na) in the blood: (Japes: 1984, 150).

The aim of the measurement: measuring its percentage in the blood by adopting the electrolyte measurement method using a flame photo meter.

Tools used: Flame photo meter, test tubes, fuel cylinder, standard solution of the element to be measured, distilled water.

Measurement method: The flame intensity of the sodium ion is measured through this device (Flame photo meter) and is converted into a direct reading according to the following steps:

Three test tubes are prepared, and an amount of distilled water (Dw) estimated at (20 ml) is placed in each tube.

After that, an amount of (0.2 ml) of the standard solution material is added to one of the tubes after taking the same

amount of distilled water from the same tube, and thus the amount of distilled water we have becomes (19.8 ml) (Dw) to which a percentage of (0.2 ml) is added The standard solution is mixed well, then we read it on the flame device after giving the device the value of the standard solution, which is (131) on the wavelength that is inside the device, that is, the device originally.

– The device is filtered with distilled water (Dw)*.

– Adding an amount of (0.2) of the blood serum of the player whose sodium ion +Na + is to be measured to the other tube after taking the same amount of distilled water from it, i.e. we will have (19.8) of distilled water (Dw) (0.2 ml) of the player's blood serum They are mixed well, then we read it on the flame device, and then we will have the final reading of the sodium ion.

Recording: The reading is recorded through the number that appears on the digital screen of the device.

The fourth measure: measuring the percentage of potassium ion (K) in the blood: (Kamath, 1972, pp24-26).

The aim of the measurement: measuring its percentage in the blood by adopting the electrolyte measurement method using a flame photo meter.

Tools used: Flame photo meter. Test tubes. Fuel cylinder. Standard solution of the element to be measured. distilled water

Measurement method: The same method is used to measure the sodium ion percentage in the blood, but with a slight difference. This method is as follows:

– Three tubes are prepared, put in each tube (20 ml) of distilled water (Dw) and add an amount of standard solution estimated at (0.2) to one of the tubes after taking (0.2 ml) of the distilled water in it, so that we have a quantity of (19.8 ml) of distilled water added to it (0.2) of the standard solution. We mix the two materials well, then we read the mixture on the flame device after giving the device the value of the standard solution, which is (0.5) on the wavelength present inside the device.

– We filter the device with distilled water (Dw)*.

– Adding an amount of (0.2) of the player's blood serum (Serum) to the third tube after taking the same amount of distilled water so that we have (19.8) of distilled water added to it (0.2 ml) of the player's blood serum and mix them well, then we read the mixture on Flame device and we will then get the final reading of the potassium ion in the blood.

Recording: The reading is recorded through the number that appears on the digital screen of the device.

10. The exploratory experiment: The researchers conducted the exploratory experiment on a sample of (4) players, other than the main sample, on (2/2/2023) in (Al-Adhamiya Club Hall) in Baghdad Governorate. The purpose of this experiment is to achieve the following:

- Ensure the safety of the tools and devices used.
- Introducing the respondents to how to apply tests and measurements.
- Training the assistant work team and defining its duties.
- Knowing the time taken to carry out tests and measurements.
- Diagnose the difficulties and obstacles and avoid them when implementing the main experiment.

11. Scientific foundations:

- ✓ **Honesty:** Virtual honesty was calculated by presenting skill tests to experts and specialists, as all experts and specialists agreed on their validity, as shown in Table (2).
- ✓ **Stability:** The stability coefficient was calculated using the (test and re-test) method, as the researchers applied the tests in the exploratory experiment to the research sample on (2/2/2023) and after (7) days had passed, the test was re-tested on the same sample and under the same conditions on (2) 9/2/2023), and to ensure the stability of the tests, the researchers used the Pearson correlation coefficient between the results of the first test and the second test, and the results showed a "significant" correlation between them, and this is an indication that the stability coefficient for these tests is also high, as shown in Table (2).
- ✓ **Objectivity:** For the purpose of ensuring the objectivity of the tests, the researchers used the scores of two arbitrators recorded during the re-tests, and after processing their results statistically using the Pearson correlation coefficient. The objectivity of the physical tests was confirmed as shown in Table (5).

Table 5: Shows the scientific basis for the tests used

Variants	Honesty	Constancy	Objectivity
Kinetic speed	0.91	0.88	0.94
Distinctive strength with speed	0.90	0.89	0.93

12. Preparing special exercises: After reviewing many available scientific sources and the opinions of some experts and specialists in the field of physical education and sports sciences (sports training, Kyokushinkai Karate) in order to benefit from their opinions and experiences in preparing

Table 6: Shows the results of the differences between the two pre-post tests of the control group

Variants	Lonliness	Pre-test		Post-test		Value(v)	Level Indication	The difference
		s	p	s	p			
Kinetic speed	Number	18.03	0.611	20.6	1.02	1.67	0.89	Non-moral
Distinctive strength with speed	Number	13.03	0.287	15.8	0.78	1.56	0.56	Non- moral
Sodium	MI/l	133.2	2.3	136.7	2.8	1.97	0.87	Non-moral
Potassium	MI/l	3.22	0.19	3.78	0.45	1.56	0.98	Non- moral

Table (6) shows that there are no differences between the pre and post tests of the control group for all physical abilities and biochemical elements, as it appeared that the calculated (t) values are not significant, as the corresponding significance levels were greater than (0.05), which indicates that there are

Table 7: Shows the results of the differences between the two tests, pre-post, for the experimental group

Variants	Lonliness	Pretest		Post-test		Value(v)	Pretest	Post-test
		S	P	S	P			
Kinetic speed	Number	17.34	0.32	25.56	2.34	4.33	0.000	Moral
Distinctive strength with speed	Number	13.06	0.12	22.45	2.78	5.67	0.000	Moral
Sodium	MI/l	134.4	0.56	144.6	0.98	4.89	0.001	Moral
Potassium	MI / liter	3.78	0.65	5.11	0.78	6.87	0.000	Moral

Table (7) shows that there are differences between the pre and posttests of the experimental group for all physical abilities and biochemical elements, as it appeared that the calculated (T) values were significant, as the corresponding significance levels were less than (0.05), which indicates that there are no

special exercises suitable for the research sample that aim to develop physical abilities (speed kinetics, strength characterized by speed) and biochemical elements (sodium, potassium) for young Kyokushinkai Karate players.

13. The main experiment

- **Tribal tests:** The researchers conducted tribal tests on (2/15/2023) in (Al-Adhamiya Club Hall) in Baghdad Governorate at ten o'clock in the morning, where physical abilities were tested and biochemical elements were measured.
- **Applying special exercises:** Through the researchers' field experience in the field of Kyokushinkai Karate, and depending on the sources, various special exercises (Appendix 1) were prepared, as these exercises were organized to suit the sample members and their training level. The experimental group members, while the control group continued on the method used by the trainer, and the main experiment lasted for (45) days and at the rate of two educational units per week, and the educational unit time was (90) minutes, and the main section time was (60) minutes.
- **Post-tests:** Post-tests were applied to the research sample on (2/4/2023) at (Al-Adhamiya Club Hall) in Baghdad Governorate at ten o'clock in the morning, where physical abilities were tested and biochemical elements were measured, and post-tests were conducted under the same conditions that were applied in the pre-test.

14. Presentation and analysis of the results of the differences between the pre and post test of the control group

no differences between the two tests Pre and post.

14. Presentation and analysis of the results of the differences between the pre and post test of the experimental group:

differences between the pre and post tests.

15. Presentation and analysis of the results of the differences between the control and experimental groups in the post-test

Table 8: Shows the results of the differences between the control and experimental groups in the post-test

Variants	Lonliness	The control group		The experimental group		Value(v) Calculated	Level Indication	The difference
		S	P	S	P			
Kinetic speed	Number	20.6	1.02	25.56	2.34	7.87	0.000	Moral
Distinctive strength with speed	Number	15.8	0.78	22.45	2.78	6.56	0.000	Moral
Sodium	MI/l	136.7	2.8	144.6	0.98	8.54	0.000	Moral
Potassium	MI / liter	5.78	0.45	5.11	0.78	6.12	0.000	Moral

It can be seen from Table (8) that there are differences between the control and experimental groups in the post-test for all physical abilities and biochemical elements, as it appeared that the calculated (T) values were significant, as the corresponding significance levels were less than (0.05), which indicates that there are no differences between the two groups in terms of Post-test.

16. Discussion Results

It is clear from Table No. (5) that there is a significant difference in favor of the experimental group in the post-test, and the researchers attribute the reason for this to the effect of the special exercises that the experimental group underwent, which contributed to the development of strength distinguished by speed by linking the development of muscular strength and speed, and this is consistent with what It was indicated by (Hara) that "the development of strength distinguished by speed is done in two basic ways, first by developing muscular strength for various parts of the body, and the second by increasing the speed of muscle contraction (Hara, 1979 ^[5], p. Performance at high levels, and the researchers attribute the reason for this to the increase in the jumping force as a result of the development of the muscles of the legs through special exercises that caused a development in the capabilities of the sample members, and this is consistent with what Risan Khraibet indicated, "The special strength preparation depends on the development of muscles that contribute significantly Senior in sports specialization and accordingly, the researchers believe that the movements of play in the Kyokushinkai sport require a very fast movement from the player, and here the distinctive strength becomes the speed that the player needs is great.

As for the characteristic of motor speed, we find that there are differences in the results of the two groups as well, and the meanness of the experimental group, and the researcher attributes the reason for this to the link between speed and skill in performance similar to the performance in fights that contributed to the development of this characteristic, as "the link between speed and skill has its own importance For the player in order to improve his level, and this is the point of view of the technical and tactical construction in the achievement of what it requires from the player to reach a high degree of special physical fitness (Abdul Azim and Magdi, 1997, p. 31) ^[6], and the researcher attributes the reason for this to the development of the speed element as a result of special exercises.

As for sodium, the normal level in the blood ranges between (135-145) milliliter per liter, and hyponatremia occurs when the level of sodium in the blood decreases from (135) milliliter / liter, and the low level of sodium results from many reasons, including Drinking too much fluid, kidney failure, heart failure, cirrhosis, and use of diuretics. Symptoms of this deficiency include abnormal brain function. People initially become sluggish and confused. If hyponatremia worsens, they may have muscle twitches and seizures and become unresponsive. Gradually, the diagnosis is based on the results of blood tests to measure the level of sodium.

Restricting fluid intake and stopping diuretics may be helpful, but severe hyponatremia is an emergency and requires the use of drugs, intravenous fluids, or both (Mazahra, 2004, p. 234) ^[1]. As for the element potassium, its level in the blood ranges between (3.6-5.2) milliliters per liter, and hypokalemia occurs when the level of sodium in the blood decreases from (3.6) milliliters / liter. The low level of potassium results from many reasons, but it usually results from vomiting, diarrhea, or Disorders of the adrenal glands or use of diuretics A low level of potassium can make the muscles feel weak, convulsive, or even paralyzed, and a heart rhythm disorder can occur The diagnosis is based on blood tests to measure the level of potassium Eating potassium-rich foods or using potassium supplements depends on Oral route, and potassium is one of the minerals that carries an electric charge when it dissolves in body fluids such as blood, and its presence is necessary for the proper functioning of cells, muscles, and nerves.

17. Conclusions

1. The development of the level of the experimental group in motor abilities (motor speed, strength characterized by speed) as a result of the application of special exercises.
2. The development of the level of the experimental group in biochemical elements (sodium, potassium) as a result of the application of special exercises.
3. The experimental group that used special exercises outperformed the control group in all variables of the research, motor abilities (motor speed, strength characterized by speed) and biochemical elements (Sodium, potassium).

18. Recommendations

1. The need to apply the special exercises applied in the research to develop and teach the research variables.
2. Using special exercises to develop physical, motor and other skill abilities in Kyokushinkai Karate.
3. Applying special exercises in other sport activities.
4. Application of special exercises with different age groups.

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Appendix (1) a model for special exercises

A1: Curl with upward pressure, you can use the bar or dumbbells, (flexion, extension, flexion and extension of the arms from the elbow joints and shoulders) repetitions (10-15) times.

A2: Jumping by alternating the legs forward and backward or by opening and joining the legs (the bar is placed on the shoulders) 15-20 jumps.

A3: Flat bench press (the bar grip can be wide, regular, or narrow), bending and extending the arms, reaching the bar on the chest, repetitions 8-12.

A4: Standing, holding the bar in front of the bottom (pulling the bar on the chest, then extending the arms high, you can use a regular or wide grip) 10-15 repetitions.

A5: Curling two arms with the bar or dumbbells (bending the arms at the elbows) from standing or from sitting, and it can be performed alternately, 10-15 repetitions.

B1: lying down (arms behind the head), raising the torso by stretching the back and lowering it down, repetitions 10-15.

B2: abdominal exercises with light weight, repetitions of 15 times

B3: circular or semicircular, repetitions 10-15

B4: Run on a runway for 10 seconds, and the speed varies according to the intensity used.

B5: back exercises 10-15 repetitions

C1: Raising the foot forward after tying it from the back with a rubber so that it forms a right angle with the two legs (and changing the exercise in several directions). The performance time varies according to the intensity used.

C2: Tying the rubber with the back-boxing hand from the standby position in karate, and the player extends fully and punches, and the performance time varies according to the intensity used.

C3: From the side, front and back supination position, the leg is lifted with the resistance of the rubber in an elongated manner. The performance time varies according to the intensity used.

C4: placing hurdles numbering (10) between each hurdle and another (1m). The height of the hurdle is 50 cm. The athlete jumps the hurdle for both legs, repetition.

C5: Jumping training on poles (1m) away from the other, distance (5m), repetition and varies according to the intensity used.

D1: Standing between two barriers, once flexed and once extended, that is, two barriers on both sides, with heights of (5 cm), once. The exercise is performed alone or with a colleague for 20 seconds.

D2: From the standing position, hold hands with the colleague from the side and raise the knee from the front to the top at an angle (90), then extend it to the side and move it at the same angle and hold for a period of time, so that the femur forms a right angle with the leg fixed on the ground, then return to the same initial position It varies according to the intensity used.

D3: punching the wall or a fixed target, and stability for a period of time (calculated) and varies according to the intensity used.

D4: Side opening with performance time pressure and varies according to the intensity used.