

"Use of intensive training for development of some physical skills and performance level of the dynamic system (Unso-Kata) in Karate"

Dr. Mahmoud Rabie El Beshihy

0/1 Introduction and problem of the research

1/1 Introduction

The recent years witnessed scientific upheaval in the field of physical preparation, after it was for the several past years more an art than a science, and helping the good knowledge of scientific principles along with the immense technological development in the development of these programs, setting solutions for many of these problems related to the field, since the countries developed in the field of sports raise their focus on physical preparation to the extent of maximum importance, and allocate part of their budgets for scientific research in this field, and work on the utilization of the results of these researches to develop the sports performance. These countries believe in the value of sports as a cultural phenomenon that reflects the progress and development, and its effects are reflected on the victories and medals that we achieve in the different sports championships. (5:7)

Owais Al-Jebaly and Tamer Al-Jebaly (2013 AD) note that the basic physical abilities play key role in training. The completion of other assets and components of training are based on them. The achievement of high levels of performance is somehow related to the player's possible achievement of high levels of physical abilities that include power, speed and endurance (7: 292).

Ahmed Ibrahim (2005) suggests that correlation of physical skills and nature of skill performance in the physical activity is what determines the physical capacities that are required and that shall be developed. (1:292).

Nadia Sultan and Sekina Nasr (2006) and RahaLandro and Ruder Farow (2001) agree that physical abilities of any activity are

related to each other, and proper intervention to develop them together to produce better and faster results. Therefore, their development must be well planned by training on the modern methods subject to the use of the nearest means to attain the purpose of training. (9:59) (11:78)

BokratemBelqassem (2008) and Step Pleez (2001) note that content and speed of physical preparation exercises must be identical with the movement performed by the player in field in accordance with the game. (4:5)

SherifHamed (2014) says that special physical capacities are basic and important as they are needed by the Kata player, whether during the performance of (Kata) movement as a whole or during the performance of skill as a part of the Kata movement to be performed (7:18).

SherifHamed (2014) notes that the explosive power is one of the active physical skills that affect the physical preparation in general, and Kata player in particular, especially the movements that require jumping, flying, change of power direction from horizontal to vertical, in addition to correlation of these powers with the other elements. (19:4)

1/2 Problem of the research:

Due to the advanced skill performance that appeared in the previous international and world championships, and the researcher's follow up of these championships as well as the plan of training loads program of the Egyptian national Karate team, the researcher noted that Egyptian players lack high physical efficiency in performance of Katas that are performed in the final rounds, particularly the Unso Kata that is the most important and highly performed katas in the finals or important rounds.

Alaa El Din Hamed (2008) states that the dynamic expression Kata Unso is one of the key dynamic systems due to its distinguished nature. The system contains skills that require jumping in rotation and change of direction. These skills shall be combined with other skills in symmetrical timeframe that shows

many combined physical and dynamic characteristics of accuracy, balance, agility, speed, and exertion of power in different amounts within certain times according to the nature of performance of each of these movements. All these elements are combined for possible achievement of the required dynamic duty. (6:365)

Mohamed Saad (2005) states that the advanced kata unso in particular, the requirement performance of the key movements including the combination of power and speed in one compound with high capability of rotation, flying and falling again with full control of body parts in space for performance of movement in the best possible level. (8:93)

This is in agreement with what was noted by SherifHamed (2014) that Kata Unso is one of the highly important katas in the final rounds or difficult games, due to the degrees of high difficulty and high level of skill performance in this kata. (4:21)

Consequently, the researcher had to look for the best scientific methods for development and improvement of the physical skills of Kata Unso, so the researcher concluded that the use of intensive training will significantly affect the development of some physical abilities of Kata Unso.

1/3 Importance of the research:

1/1/3 Scientific Importance

- This research is one of the early researches that use intensive training for development of some physical skills of Kata Unso.
- Attempt to design training program using intensive training for development of some physical abilities of Kata Unso.
- Identification of the effect of programs on the development of some physical skills and performance of Kata Unso.

2/1/3 Applied Importance:

- This study helps to develop and improve some special physical abilities.
- This study helps the development and improvement of Kata Unso performance.

1/4 Objectives of the research:

The research aims at identification of the effect of using intensive training for development of some physical skills in the dynamic system (Unso- Kata) of the Egyptian national team karate players through:

- 1- Design of training program using intensive training for development of some physical skills of Kata unso.
- 2- Identification of the effect of the program using intensive training for development of some special physical skills and performance of Kata unso.

1/5 Hypotheses of the research:

The researcher assumes that:

- 1- There are statistically significant differences between the pre and post measurement in some physical skills for the favor of the post measurement.
- 2- There are statistically significant differences between the post and pre measurement in the performance of Kata Unso for the favor of the post measurement.
- 3- There are improvements in the performance of Kata Unso dynamic system.

0/2 Procedures of the research:

1/2 Methodology of the research:

The researcher used the experimental methodology by designing one experimental group because it is suitable to the purpose of the research.

2/2 Population and sample of the research:

The researcher chose the research sample by purposive method of the Egyptian national team players of Kata men who are registered in the records of the Egyptian Karate Federation for the training season 2014 (n= 6 players).

3/2 Means and tools of data collection:

The researcher used tools for data collection in accordance with the nature of the research and the data to be obtained, to determine:

- 1- Physical abilities of Kata Unso.
- 2- Pre-measurements
- 3- Post measurements
- 4- Design of the proposed training program using the Tabata Method.
- 5- Application of the proposed training program using intensive training.
- 6- Procedures of post measurements.
- 7- Presentation and discussion of results.
- 8- Restameter to measure height in centimeter
- 9- Medical scale for measurement of weight in kilogram.
- 10- Stopwatch
- 11- Funnels
- 12- Divided boxes
- 13- Ground stairs
- 14- Medical balls

3/3 Steps of the experiment:

3/3/1 Basic Study:

The researcher carried out the post measurement in the period from 06-07/06/2014 on the basic sample of the research (n=6 players)

3/3/2 Experimental Program:

The researcher applied the training program during the period from 09/06/2014 to 21/07/2014 by average of (6) weeks (5) training modules per week.

When the training program was set, its purpose had to be defined and the bases adopted when the training program was set were identified.

First: objective of the program: the training program aims at examining the effect of using the intensive training on some physical skills of the dynamic system (Unso- Kata) of karate players.

Second: bases of the training program:

- The training program depends on development of some physical abilities of Kata Unso by intensive training method.
- The training program depends on the improvement of Kata Unso performance.

Third: Determination of the components of physical skills of the age groups under study:

The researcher defined the key physical abilities of Kata Unso for the age group under study upon the referential survey and properties of the age group as follows (endurance of force, endurance of speed, endurance of ability and explosive power).

Fourth: determination of the content of training modules:

The content of training module shall include

- 1- Development of some physical abilities of Kata Unso.
- 2- Development of skill performances of Kata Unso

Fifth: Determination of the period of training program:

The period of training program for development of some physical capabilities of dynamic system Kata Unso is 4 weeks according to the intensive training.

Sixth: determination of the time of weekly training modules:

Number of weekly training modules (5): average time of training module (30-60) seconds.

Seventh: loads used in the program

Intensity: less of the maximum and maximum from (75%- 95%)

Groups: (8) exercises x (20) seconds

Breaks: (10) seconds between exercises

Eighth: parts of training intensity

The training module is divided into three parts as follows

Introductory part: this depends on the physical and physiological preparation for use of intensive training

Main part: this includes special training exercises and skill training of sections in Kata unso by the intensive training method.

Final part: these include exercises that aim at restoring the player to the normal condition.

Eighth: determination of the applied training methods:

The researcher used the intensive training to develop some physical skills of Kata Unso

3/3/3 Post Measurement:

The post measurement was carried out during the period 25-26/07/2014 to the basic sample of (6) players.

3/4 Terms:

3/4/1 Intensive training:

Training method that aims at developing the physical and skill capabilities in the direction of endurance of the specialized sports activity with high intensities that range from 75-95% of the highest intensity per player with very short breaks (procedural definition)

3/4/2 Special physical abilities:

Set of combined physical elements that help develop the skill capabilities of skill performance of specialized sports in accordance with the nature of activity performance (procedural definition).

3/4/3 Dynamic system (Kata):

Consecutive series of the defense and attack styles according to internationally recognized pattern. These defense and attack styles include blocking, punching and kicking through different approaches at variable speeds, and direction of them to the three levels from the body of false attacker or group of attackers. This is combined with the adoption of fixed different and multiple balance and dynamic positions. (1:45)

3/4/4Performance:

Evaluation of technical condition (skill performance) of players through referees (procedural definition)

0/5 Presentation and Discussion of Results:

Table (1)

Arithmetic means, standard deviation, means and torsion coefficient of the variables of (time age- training age- height-weight) of the experimental group

N=6

Variable s	Measuremen t unit	Arithmeti c means	Means	Standar d deviation	Torsio n
Time age	Year	23.5000	23.0000	2.1679	0.2650
Training age	Year	17.5000	17.0000	1.7607	0.4947
Height	Cm	173.0000	173.0000	1.5492	0.0000
Weight	Kg	73.6667	72.0000	7.2296	0.7062

The results of the table indicate that the arithmetic means, standard deviation and torsion coefficient of the variables of group for the sample of the research, and indicates the identification of the subjects of the sample in these variables. The torsion coefficient of variables ranged between (0.000 and 0.7062); that is, these values ranged between (± 3). This shows direct indication that the pre sample of the research is free of the defects of immoderate distributions in the functions of growth and training age, which shows identification of the pre sample in these variables.

Table (2)

Arithmetic means, standard deviation, means and torsion coefficient of the physical measurements of the experimental group (pre measurement)

Variables		Measurement unit	Arithmeti c means	Means	Standard deviation	Torsion
Power endurance	Arms	Repetition	24.8333	25.0000	0.7528	0.3126
	Legs	Repetition	15.1667	15.0000	0.7528	0.3126-
Speed endurance	Arms	Repetition	31.0000	31.0000	0.8944	0.0000
	Legs	Time (s)	9.0917	9.1750	0.2636	0.9306-
Power endurance	Arms	Repetition	18.5000	18.5000	0.5477	0.0000
	Legs	Repetition	19.0000	19.0000	0.6325	0.0000
Explosive power	Arms	Distance (cm)	518.0000	517.5000	20.0499	0.3930
	Legs	Distance (cm)	225.0000	226.0000	4.8990	0.3521-

The table results show the arithmetic means, standard deviation and torsion coefficient for the physical measurements of the sample of the research. In addition, the subjects were identical in these variables. The torsion coefficient of variables ranges

between (-0.9306 and 0.3930); that is, values varied between (± 3), which gives direct indication that data of the main sample of the research are free of the immoderate distribution defects in the variables of special physical abilities, which indicates homogeneity of the subjects of the main sample of the research in all selected physical variables.

Table (3)

Arithmetic means, standard deviation, means and torsion coefficient of the evaluation of performance standard of the dynamic system Kata Unso of the Experimental Group (pre measurement)

N= 6

Variables	Arithmetic means	Means	Standard deviation	Torsion
First referee	7.4167	7.5000	0.2041	2.4495-
Second referee	7.4167	7.5000	0.3764	0.3126
Third referee	7.6667	7.7500	0.4082	0.8573-
Fourth referee	7.4167	7.5000	0.3764	0.3126
Fifth referee	7.2500	7.5000	0.4183	1.5367-
Total	37.1667	37.5000	1.4720	0.4181-

The results of the table indicate that Arithmetic means, standard deviation, means and torsion coefficient in the evaluation of performance of dynamic system Kat (Unso) in the pre measurement, and show identification of the members of the sample in these variables. The torsion coefficient of the variables under study ranges between (-2.4495 and 0.3126); that is, values range between (± 3), which gives direct indication that data of these variables are free of the defects of immoderate distributions in those data, which shows conformity of these variables.

Table (4)

Arithmetic means, standard deviation, means and torsion coefficient of the physical measurements of the pre and post measurement (of the experimental group)

N= 6

Variables		Measurement unit	Pre measurement		Post measurement	
			Arithmetic means	Standard deviation	Arithmetic means	Standard deviation
Power endurance	Arms	Repetition	24.8333	0.7528	27.6667	0.5164
	Legs	Repetition	15.1667	0.7528	12.3333	0.8165
Speed endurance	Arms	Repetition	31.0000	0.8944	36.5000	1.0488
	Legs	Time (s)	9.0917	0.2636	8.5833	0.2935
Power endurance	Arms	Repetition	1805000	0.5477	21.8333	0.9832
	Legs	Repetition	19.0000	0.6325	21.6667	0.5164
Explosive power	Arms	Distance (cm)	518.000	20.0499	570.0000	28.8097
	Legs	Distance (cm)	225.0000	4.8990	244.3333	4.9666

The results of the table note the arithmetic means and standard deviation of the physical measurements in the post and pre measurement of the sample of the research

Table (5)

Significance of differences between the pre-post measurement in the special physical variables (experimental group)

N=6

Variables		Direction	Number	Average ranks	Total ranks	"D" value	Probability of mistake
Power endurance	Arms	-	0	0.00	0.00	* 2.333	0.020
		+	6	3.50	21.00		
		=	0				
		Total	6				
	Legs	-	6	3.50	21.00	2.232	0.026

		+	0	0.00	0.00		
		=	0				
		Total	6				
Speed endurance	Arms	-	0	0.00	0.00	* 2.251	0.024
		+	6	3.50	21.00		
		=	0				
		Total	6				
	Legs	-	6	3.50	21.00	* 2.201	0.028
		+	0	0.00	0.00		
		=	0				
Total		6					
Energy endurance	Arms	-	0	0.00	0.00	* 2.214	0.027
		+	6	3.50	21.00		
		=	0				
		Total	6				
	Legs	-	0	0.00	0.00	* 2.271	0.023
		+	6	3.50	21.00		
		=	0				
Total		6					
Explosive power	Arms	-	0	0.00	0.00	* 2.201	0.028
		+	6	3.50	21.00		
		=	0				
		Total	6				
	Legs	-	0	0.00	0.00	* 2.201	0.028
		+	6	3.50	21.00		
		=	0				
Total		6					

* "D" table value at significance level of 0.05 is 1.96

Results of the table indicate that there are statistically significant differences between the pre measurement and post measurement for the favor of the post measurement in the physical variables under study.

The researcher attributes the superiority of post measurement on the pre measurement in the results of physical special physical abilities to the nature of the proposed training program with the rated exercises that it contains using the intensive training that was related to the skill performance.

This agrees with what was mentioned by Ahmed Mohamed Ibrahim (2005) that physical abilities are related to the nature of skill performance in the specialized sports activity that defines the physical skills that must be developed (1:292).

Nadia Sultan and Sekina Nasr (2006) note that the physical abilities of any activity are related to each other and to the proper intervention for their development. This produces better and faster results, so proper planning shall be set to develop them together through training by modern means subject to the use of the best means for achieving the required objective of training (9:59).

Table (6)
Average of change of physical variables in the post measurement from the pre measurement of the experimental group

Variables		Pre measurement	Post measurement	Average of change %
		Arithmetic means	Arithmetic means	
Power endurance	Arms	Repetition	27.6667	%11.41
	Legs	Repetition	12.3333	%18.68
Speed endurance	Arms	Repetition	36.5000	%17.74
	Legs	Time (s)	8.5833	%5.59
Power endurance	Arms	Repetition	21.8333	%18.02
	Legs	Repetition	21.6667	%14.04
Explosive power	Arms	Distance (cm)	570.0000	%10.04
	Legs	Distance (cm)	244.3333	%8.59

The table results indicate the average change of the physical variables in the post measurement from the pre measurement.

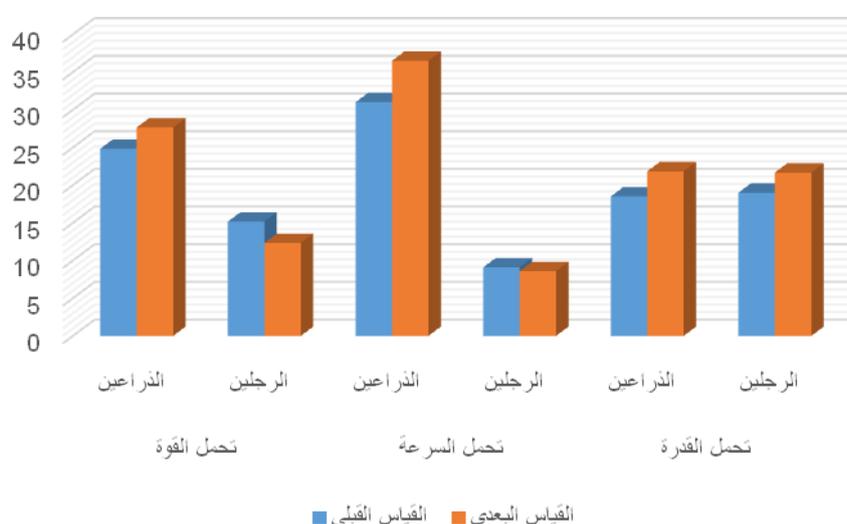


Figure (1)

Average of change of post measurement from pre measurement in the physical variables (force endurance, speed endurance and power endurance)

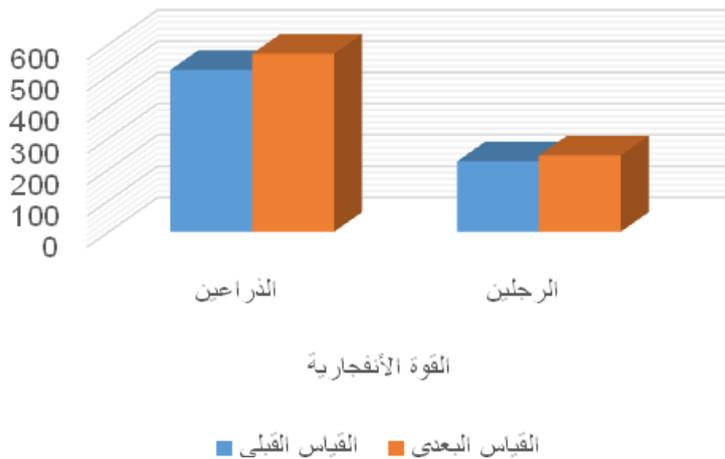


Figure (2)

Average change of the post measurement from the pre measurement in the physical variables (explosive power)

Table (6) and figures (1 and 2) indicate the average change between the pre measurement and post measurement of the variables of physical abilities of the subjects of the main research sample. The percentages of change of these variables varied between 5.59% as the least percentage of change, which represents the change of speed endurance test of legs, while the highest percentage of change was 18.68%, which represents endurance test of power of the two legs.

The researcher attributes the percentages of change to the proposed training program using his method and the rated trainings. This is in line with what was mentioned by SherifHamed that the physical abilities are basic and important as the Kata player needs them whether during the performance of dynamic system (kata) as a whole or during the performance of skill as part of the dynamic system (4:3)

Table (7)

Arithmetic means and standard deviation in the evaluation of performance of dynamic system (Unso- Kata) in the pre measurement and post measurement of the experimental group

N=6

Variables	Pre measurement		Post measurement	
	Arithmetic means	Standard deviation	Arithmetic means	Standard deviation

First referee	7.4167	0.2041	8.1667	0.2582
Second referee	7.4167	0.3764	8.3333	0.2582
Third referee	7.6667	0.4082	8.3333	0.4082
Fourth referee	7.4167	0.3764	8.4167	0.3764
Fifth referee	7.2500	0.4183	8.4167	0.3764
Total	37.1667	1.4720	41.6667	1.3663

The results of the research indicate the arithmetic means and standard deviation of the special physical measurements of the pre and post measurement of the sample of the research.

Table (8)

Significance of differences between the pre measurement and post measurement in the evaluation of performance of dynamic system (Unso- Kata)

N=6

Variables	Direction	Number	Average ranks	Total ranks	"D" variable	Probability of mistake
First referee	-	0	0.00	0.00	* 2.251	0.024
	+	6	3.50	21.00		
	=	0				
	Total	6				
Second referee	-	0	0.00	0.00	* 2.232	0.026
	+	6	3.50	21.00		
	=	0				
	Total	6				
Third referee	-	0	0.00	0.00	* 2.070	0.038
	+	5	3.00	15.00		
	=	1				
	Total	6				
Fourth referee	-	0	0.00	0.00	* 2.449	0.014
	+	6	3.50	21.00		
	=	0				
	Total	6				
Fifth referee	-	0	0.00	0.00	* 2.226	0.026
	+	6	3.50	21.00		
	=	0				
	Total	6				
Total	-	0	0.00	0.00	* 2.214	0.027
	+	6	3.50	21.00		
	=	0				
	Total	6				

* "D" table value at significance of 0.05 is 1.96

Results of the table indicate that there are statistically significant differences between the pre measurement and post measurement for the favor of post measurement in the evaluation of performance level of the dynamic system (Unso).

Table (9)

Average change of the evaluation of performance of dynamic system (Unso-Kata) in the post measurement from the pre measurement

Variables	Pre measurement	Post measurement	Average change %
	Arithmetic means	Arithmetic means	
First referee	7.4167	8.1667	%10.11
Second referee	7.4167	8.3333	%12.36
Third referee	7.6667	8.3333	%8.69
Fourth referee	7.4167	8.4167	%13.48
Fifth referee	7.2500	8.4167	%16.09
Total	37.1667	41.6667	%12.11

The table results note the average change to evaluate the performance of dynamic system (Unso-Kata) in the post measurement from the pre measurement

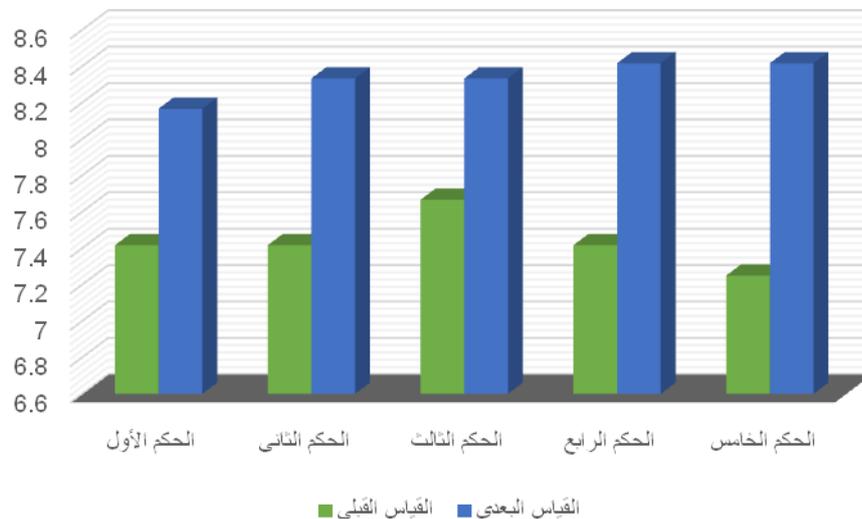


Figure (3)

Arithmetic means of the post and pre measurement of dynamic system performance (Unso- Kata)

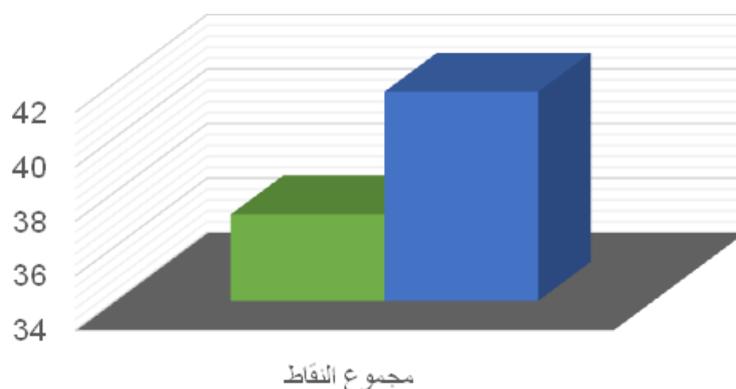


Figure (4)

Arithmetic means of the post and pre measurement of the performance of dynamic system (Unso- Kata) in the total points

Table (9) and figure (3, 4) show the average change between the pre and post measurements of the performance evaluation variables in the members of the main sample. The percentage of change of these variables varied between 8.69% as the lowest percentage of change, which represents change of degrees of the third referee, while the highest percentage of change was 19.09, which represents the degrees of the fifth referee.

The researcher attributes the percentages of change between the pre measurements and post measurements in evaluation of skill performance of dynamic system (Unso- Kata) under study in the members and basic sample of the research to the effectiveness and effect of the proposed program using the intensive training.

This is in line with what was noted by AlaaHamed (2008) that the dynamic system (Unso- Kata) is one of the key systems due to its distinguished nature. It contains the skills that require jumping, spin, change of direction and combination of these skills with others within consistent art performance context that shows many combined physical and dynamic characteristics with exertion of power for different deals in certain times that match the nature of

performance of these skills, as these elements are combined to perfect the required dynamic duty (6:365)

0/5 Conclusions and Recommendations:

1/5 Conclusions:

According to the goals and hypotheses of the research, and through the statistic treatments and presentation and discussion of results, the researcher managed to conclude that:

- 1- The training program using intensive training helped to improve the special physical skills (force endurance, speed endurance, power endurance, explosive power) of arms and legs, as the percentage of improvement was (11.41%, 18.68%, 17.74%, 5.59%, 18.02%).
- 2- The training program using intensive training had a positive role on the dynamic system (Unso Kata) as the percentage of improvement was (10.11%, 12.36%, 8.69%, 13.48%, 16.09%, 12.11%).
- 3- The training program using intensive training showed importance of the special physical skills (force endurance, speed endurance, power endurance, explosive power) for the dynamic system (Unso-Kata) and the similar trainings of performance.

2/5 Recommendations:

According to the data and key results of the research, and within the limits of the sample and its fields, the following recommendations can be provided:

- 1- To apply a training program using intensive training on planning for training in karate because of its positive effect on the development of (force endurance, speed endurance, power endurance, explosive power) and performance improvement.
- 2- To focus on the development of physical abilities of other dynamic systems using the intensive training.
- 3- To contribute to update the karate trainers on the program using intensive training to utilize it in the training of Kata and Come-Teover the other age groups according to each group.

0/6References

1/6 Arabic References:

- 1- Ahmed Mahmoud Ibrahim: encyclopedia of the theoretical determinants of sports training and application for planning the training programs of karate, Dar Al-Maaref, Alexandria (2005).
- 2- BokratumBelqassem: Effect of Plyometric training on the distinguished ability with speed and some basic football skills, unpublished master thesis, university center, KhamisMalyana, Algeria (2008).
- 3- Reda Youssef Yousry, Proposed training approach for development of performance of dynamic system Kata according to the energy production system in karate, unpublished PhD thesis, Faculty of Physical Education, Menoufia University, (2008),
- 4- SherifHamed: Effect of plyometric training on some physical and skill abilities of world class karate players, unpublished PhD thesis, Faculty of Physical Education, Helwan University (2014).
- 5- Abdelaziz Al-Nemr, Nariman Al-Khatib: muscular power, design of power program and planning of training season, Al-Ustaza for Sports Book, Giza (2007 AD).
- 6- Alaa El Din Hamed: Effect of training program using the specific programs on special physical fitness and performance of some Kata dynamic systems for karate juniors under 14, 4th regional conference of the international health, physical education, recreation, sports and dynamic expression, Middle East, Part V, Faculty of Physical Education, Alexandria University, (2008).
- 7- Owais Al-Jebaly, Tamer Al-Jebaly: Modern training system, Abu El-Magd Printing and Publication House, Cairo (2013 AD)
- 8- Mohamed Saad Mohamed: Effect of plyometric trainings on the development of special agility and its relation to the development of kata performance in the Karate juniors, 12-

14 years old, unpublished PhD thesis, Faculty of Physical Education, Alexandria University, (2005 AD).

9- Nadia Sultan, Sekina Nasr: Modern approaches of training, Alexandria (2006).

2/6 Foreign references:

10- Raho&LandrofRoderf: The relation between physical fitness Karate skills and performance level between Astonia National Karate Team (2001).

11- Step - Pleezetc: The effect of Motor Ability at the Karate Skills and performance (2006).