

Development of the Determinants of tactical performance with significance of the monthly Biorhythm and their effect on the results of Kumite Matches in Karate

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Introduction and problem of the research:

As a theory and applications, sports training rapidly progresses, particularly after many countries dedicated their efforts and human and material capacities to upgrade of sports achievement of their players, because these countries consider the results of international championships and Olympic tournaments as a source of cultural progress of the state and mark of the high economic and scientific level of individuals in society.

Biorhythm is a modern science used in the field of physical education. The performance efficiency of individuals vary from time to time during the same day, same week or month. Biorhythm is very important in the field of sports, particularly after the rise of sports performance and break of records in the international championships and Olympic tournaments. In addition, it is a new approach as an entry to improve the effectiveness of sports training methods and creation of new approaches related to the nature of sports activity, which would be reflected on the (physical, skill, psychological and mental) sides of players in general and players in high competition levels in particular, where improvement and superiority are very simple.

The theory of Biorhythm depends on the fact that man, from birth to death, undergoes three (mental, physical and emotional) cycles. The physical cycle requires (23) days to complete, while the emotional cycle requires (28) days to complete, and the mental cycle requires (33) days to complete (31:45).

These three cycles begin from scratch on birth and increase gradually till they reach their value. These cycles are like the wave the first half of which consists of the positive level through to the maximum point while the second half represents the negative level through to the lower point which is called the critical days per cycle. (21:60)

Ali Fahmy Al Bek (1990), Youssef Dahab Ali (2002), Ahmed Mahmoud Ibrahim et al (2014), agree that each cycle begins from scratch and gradually increases till they reach their apex (according to Dynos curve. They indicated that this is done on the (11.5th) for

the physical cycle, (14th) day for the emotional cycle, and (16.5th) day for the mental cycle. The negative stage begins to decrease till it reaches zero, then another positive stage begins. Therefore, we find that the cycles are like waves. The first half of cycles consists of the positive level through which the cycle reaches the maximum point, while the second half represents the negative level through which the cycle reaches the lowest point of activity of cycles. The areas of intersection of cycle with the horizontal straight line, so they are called critical days per cycle. (11), (24), (8).

Ahmed Mahmoud Ibrahim and Amer Allah Ahmed (1999) note that Biorhythm is very important and effective on the physical determinants and that it is related to the efficiency of biological systems in the human body and their ability to work over the full day and the importance of this for the sports activity in general. Within the development of new approaches for training, scientific studies and researches try to determine the key functional and physical- skill requirements required for the properties of sports activity to be exercises. In addition, it positively affects the training process to reach the high sports levels.

The researcher (2007 AD) agrees with the notes of Ahmed Mahmoud Ibrahim (2005) on the Kumite competitions in karate that they are competitions of continuous development and upgrade based on scientific and applied study in the (physical, skill, psychological, mental and tactical levels). The tactical styles performed by player vary in the different situations of competition and they vary in their content and performance from player to the other and those performed by means of attack and defense. They are the essence of karate and they rank the first in attention of experts to this sport, particularly after the new amendments to the articles of the law of karate. Work and planning adds to the upgrade of Egyptian players' standard to meet the international standards of karate represented in the increasing tactical building of players in accordance with the variable situations of the games, attention to physical building in accordance with the training developments, increase of the skill building in accordance with the nature of the game. (1) and (2)

Attack performance of Kumite players and motor capacities are key approaches of sports training of players of high standards because they are new approach to upgrade the player's

productivity and increase the player's attack performance during the games.

The researcher agrees with the notes of Ahmed Ibrahim (2011 AD) in that practical application of attack performance and its motor capacities in the training programs directed to kumite players requires scientific codification of that firstly tends to develop the motor skills of the skill styles that comprise the attack performance such as the rapid motor response, speed force, speed endurance, performance endurance and agility, and rating directed secondly to the determinants of attack performance itself as a position for attack readiness and the positions of attack applied, place division of the areas and spaces of field and time division of attack activity during the games and effect of the attack performance in terms of the points calculated in games. (3)

Therefore, the researcher believes in the importance of Biorhythm that appears in that it creates a new style of sports training in accordance with the curve of Biorhythm to upgrade the training condition of players. This is in agreement with the principle of individual differences in sports training for players through the direction of training loads in accordance with the significance of the monthly Biorhythm curves that represent the building block of the proposed training program in accordance with the values of determinants of the Biorhythm curve of player and the player's ability to perform to contribute to the upgrade of motor capacities and the skill styles of players. Therefore, the effect of attack performance determinants improves and subsequently improve the results of games and achievement of sports achievements.

Aim of the research:

This research aims at identifying the development of tactical performance determinants with the significance of monthly vital performance indicators and their effect on the results of Kumite games in karate.

Hypotheses:

- 1) There are differences between the effectiveness of post measurement of the levels of motor capacities of tactical performance without use and with use of the monthly Biorhythm curves in the training program of sample of the research for the favor of the post measurement using the monthly Biorhythm curvatures under research.
- 2) There are differences between the values of post measurement effectiveness of the levels of tactical performance without use

and with use of the monthly Biorhythm curves in the training program for sample of the research for the favor of the post measurement using the monthly Biorhythm curvatures under research.

- 3) There are differences between the values of effectiveness of post measurement in the results of games with out use and with use of the monthly Biorhythm curves in the training program of the sample of the research for the favor of post measurement using the monthly Biorhythm curvatures under research

Terms:

Biorhythm:

The changes that occur to the emotional, physical and mental condition of the individual and that is related to the mechanisms and changes of the surrounding interior and exterior medium. (164:22)

Procedures of the research:

Methodology of the research:

The researcher used the experimental methodology with the post and pre design of one player because it is suitable to the nature of the research.

Sample of the research

The researcher selected the sample of the research on purposeful basis of the first league players of men for the sports season (2015 AD) in Menoufiya Karate Zone. The total sample was (20) players who were divided into the experimental sample of the research that consists of (1) player of the national team of Egypt (weight: +84 kg) to conduct the main study. The pilot group consisted of (19) players to find the scientific treatments of tests under research and use them in the experimental games under study.

Consistency of the sample of the research

Consistency of the (basic and experimental) sample of the research was conducted in the variables of (age, height, training life) and the special motor capacities under research. Table (1) indicates this to confirm that the members of the same fall under the moderate curve.

Table (1)
Consistency of the Sample of the (Main, Pilot) Research in the variables of (age, height, training life) and motor capacities of the attack performance under research

Variables			Unit of Measurement	Arithmetic Means	Median	Standard Deviation	Skewness coefficient	
Special Motor capacities of attack performance under research	Age		Year	24.050	24.000	2.564	0.500	
	Height		Cm	175.70	175.00	7.183	1.660	
	Training life		Year	15.800	16.000	1.824	-0.366	
	Motor response speed	Straight Counter Box GyakuSuki	Right	Sec	1.848	1.860	0.077	0.369
			Left	Sec	1.864	1.890	0.067	-0.264
		Semi-circular short counter kick KezamiOraMuwashyGery	Right	Sec	2.085	2.060	0.076	0.822
			Left	Sec	2.059	2.045	0.061	1.001
	Transitional Speed	Moving forward	Right	Sec	2.770	2.780	0.139	-0.638
			Left	Sec	2.749	2.760	0.146	-0.414
		Back retreat	Right	Sec	2.816	2.770	0.074	0.192
			Left	Sec	2.841	2.790	0.089	0.594
	Speed force	Speed and agility of leg movement in the original and secondary directions		Right	Sec	32.132	32.010	0.216
Left				Sec	31.494	31.410	0.203	0.637
Free				Sec	30.397	30.550	0.333	-1.807
Motor speed in the Pendulum step		Right	.No	10.350	10.000	0.745	0.151	
		Left	.No	10.850	11.000	0.671	-0.985	
Counter straight front box GyakuSuki (.45 Sec		Right	.No	22.800	23.000	0.616	-1.384	

		Semi-circular short counter kick KezamiOraMuw ashyGery (10 Sec.)	Left	.No	10.950	11.000	0.510	-0.112
Speed endurance		Counter straight front box GyakuSuki (.20 Sec	Rig ht	.No	41.050	41.000	0.510	0.112
		Semi-circular short counter kick KezamiOraMuw ashyGery(20 Sec.)	Left	.No	20.200	20.000	0.768	1.178
Performance endurance		Counter straight front box GyakuSuki (.45 Sec.)	Rig ht	.No	69.700	70.000	1.302	-0.013
		Semi-circular short counter kick KezamiOraMuw ashyGery (45 Sec.)	Left	.No	35.350	35.000	0.813	0.541

The above table (1) indicates that the Skewness coefficients of the variables of Age ‘Height ‘Training life,’ (Special Motor capacities of attack performance under research ranged between 1.660: 1.807 is the previous samples; that is, they were limited between (± 3)

Means used for data collection:

- Physical tests of attack performance of arms under research

- Test of motor response speed in the Kumite players in Karate.
- Test of progress and retreat for measurement of transitional speed with front and back leg movement of the Kumite players in karate.
- Test of the original and secondary directions to measure speed and agility of leg performance.
- Test of the pendulum step of stability to measure the speed of movements of Kumite players in the sports of karate.

- Test of counter straight box (GyakuSuki) and semi-circular kick skill (KezamiOraMuwashyGery) in experimental time (10 sec, 20 sec, 45 sec.) to measure speed force, speed endurance and performance endurance of skill respectively in the sample of the research. (Attachment 2).

Scientific treatments of the motor capacities under research

Credibility of the tests under research

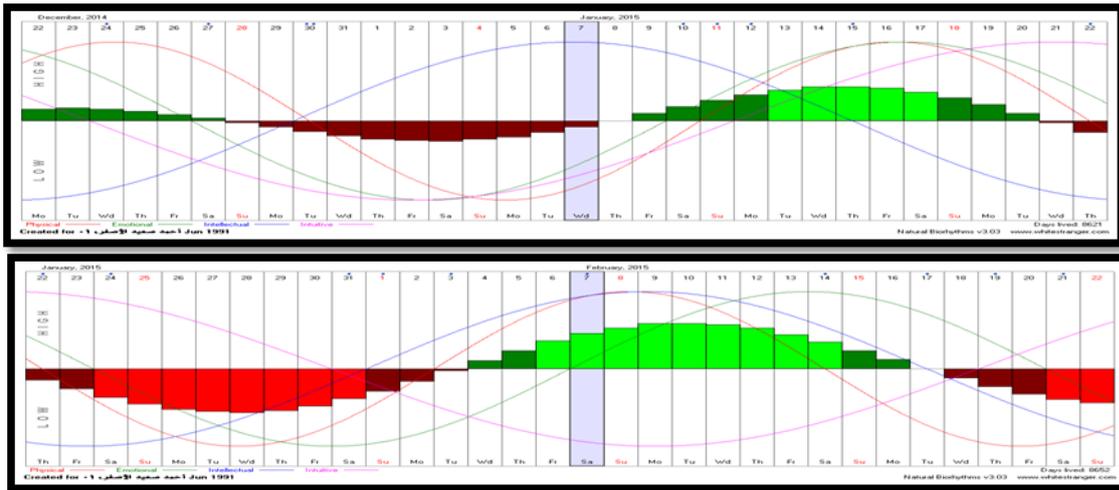
Credibility of tests under research was calculated by partitioning of liquidation between the lower spring and higher spring of pilot sample of (19 players), and the least calculated T values were (2,309), while the tabulated (T) value at freedom of (8) and significance of (0.05) was (22,695) which signifies the credibility of tests and their ratification as a means of evaluation and measurement.

Stability of tests under research.

Stability of tests under research was measured by application of tests and reapplication of them again (Test-Retest) with difference of (7) days between the applications of pilot sample of (19) players. The correlation coefficient between the first and second applications was calculated using the Person's simple correlation coefficient where the calculated (r) value ranged between (0.824: 0.998). these represent high values, which indicates that these tests under research are highly stable and acceptable, and they were approved as a means for measurement and evaluation.

Proposed training program:

- The training programs were conducted for the first time on players of the sample of the research without use of the Biorhythm curves in the period from Thursday, 30/10/2014 to Tuesday, 09/12/2014 AD.
- The training program was conducted for the second time on the player the sample of the research using the curves of Biorhythm in the period from Monday, 22/12/2014 to Saturday, 31/01/2015 AD, and the indicators of the monthly rhythm curve of player during that period were as follows:



calculator v3.00, FROM 22/12/2014 TO 31/01/2015 AD

No.	Variables	Content
	Overall time of the program	(3150 minutes) = (52.5) training hours
	Stages of the program	(special, before competitions) The program was applied twice. The first time without use and the second time with use of the player's monthly biorhythm curves.
	Time of training module	The time of training module ranges from (90: 120) minutes
	Number of training modules during the program	(30) training modules
	Number of training modules during the week	(5) training modules per week
	Number of weeks	(6) weeks, including (4 weeks) during the stage of special preparation, (2 weeks) during the pre-competition stage

Table (3)

General Time distribution of the parts of proposed training program under research

No	Parts of training module	percentage to total time	Total time in minutes	Total time in hours	
1	Preparatory part (warm up)	10%	320min	5.333 Hour	
2	Main part	Special physical preparation	20%	640Min	10.666 hour
		Year	13%	416 Min	6.933 Hour
		Attack tactical preparation	30%	960Min	16 Hour
		Competition exercises	22%	704 Min	11.733 Hour
3	Final	5%	160 Min.	2.666 Hour	
Total		100%	3200 Min	53.333 Hour	

Proposed training loads during the proposed training modules:

The training program was applied using the periodic training approach of high and low intensity and repetitive program. The daily training module consisted of three parties (preparatory, main, final).

First: Preparatory (warm up) part:

Warm up includes the light running exercises, muscle preparation exercises, general stimulation of blood circulation, stretch exercises, and some exercises that contribute to raise body temperature where the organs and neurological and physiological parts of the body become ready to admit the content of training module. In addition, the body flexibility exercises and concentration of them for rapid recovery of the effects of technical exercises that precede the physical exercises directly, and preparation of them to prepare the content of the main part, raise their capacities and direct the content of that stage to anerobic work. The load ranges between (40:45%) of the maximum capacity of the player. The total time of

this section was (320) minutes; that is, (10%) of the total time of the proposed program under research.

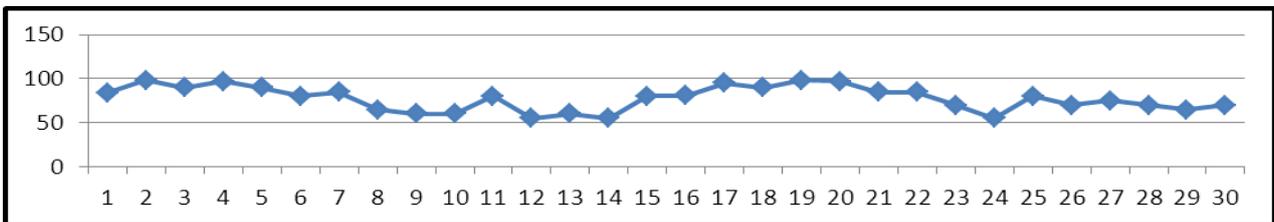
Second: Main Part:

This part consists of four different sections (exercises of special physical preparation, exercises of skill preparation, exercises of tactical preparation and exercises of competitive preparation). The total time of this section was (2720 minutes); that is, (85%) of the total time of the proposed training program under research.

The research used the maximum, less than maximum and moderate training loads with their degrees of (9: 100, 75: 90, 50: 75%) respectively, from the highest intensity using the high and low periodic exercise methods, low intensity and repetitive training methods.

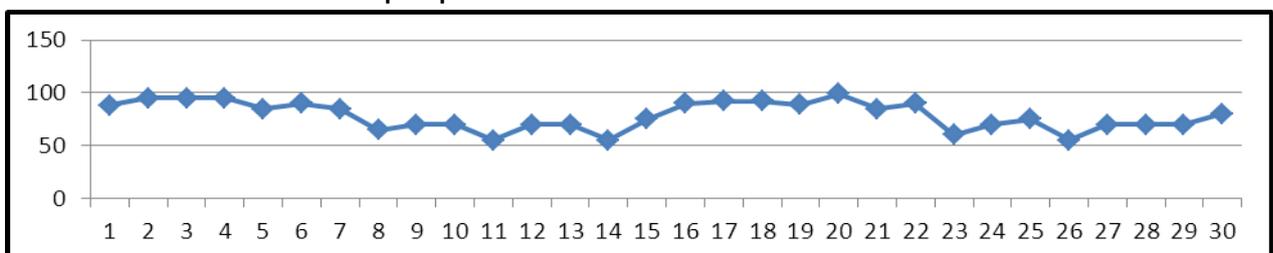
Section one: special physical preparation exercises

This section includes the physical training exercises for development of motor capacities of tactical performance under research. The motor response speed, motor speed, transitional speed and speed force of the arms and legs, speed endurance, speed and agility of leg movement for the different skills of attack by arms and single and compound arms and legs from the position of right and left attack readiness with types of direct attack and counter attack. Intensity of training load used in this section ranges between



(55%) to (98%) of the maximum performance of each player. The total time of this section was (640 minutes) that is, (20%) of the total time required for the proposed program under research.

Figure (2) intensity of daily training load for the physical preparation under research



Section two: Skill preparation exercises

The total time of this section was (416 minutes); that is (13%) of the total time of the proposed program (55%: 98%) of the maximum intensity for player. This part includes training of arms and legs skill for the player's performance of single and combined skills of the arms or legs only, and combined skills using the arms and legs.

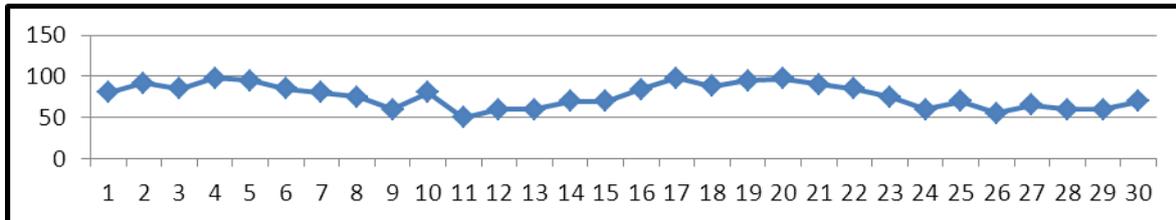


Figure (4) intensity of daily training load for tactical preparation under research

Section three: exercises of tactical preparation:

The total time of this section was (960 minutes); that is, (30%) of the total time of the proposed program under research. The intensity of training load during this section ranged from (55%: 98%) of the maximum intensity for player. This training section includes the single and combined arms and legs attack skills, including training through the different tactics of playing by use of the types of direct attack and counter attack after training in them without peer, then with negative peer, stable positive peer and moving positive peer.

Section four: Competitive preparation (game training)

The total of this part was (704) minutes with percentage of 22% of the total time of training program under research. This section includes the conditional training exercises and experimental competition exercises under research. The conditional exercises are based on conditions to be defined by trainer through the modules of training program in accordance with the purpose of training. It may be conditional upon the area of playing or time of game (10, 20, 30, 45 and 60) or more seconds. It may be conditional upon the skills and their type (arms, legs, mixed) individual or composite, or by definition of the type of attack used whether direct attack or type of counter attack under research. The trial games are games for real free application of player and training in it is usually provided through the modules of training program.

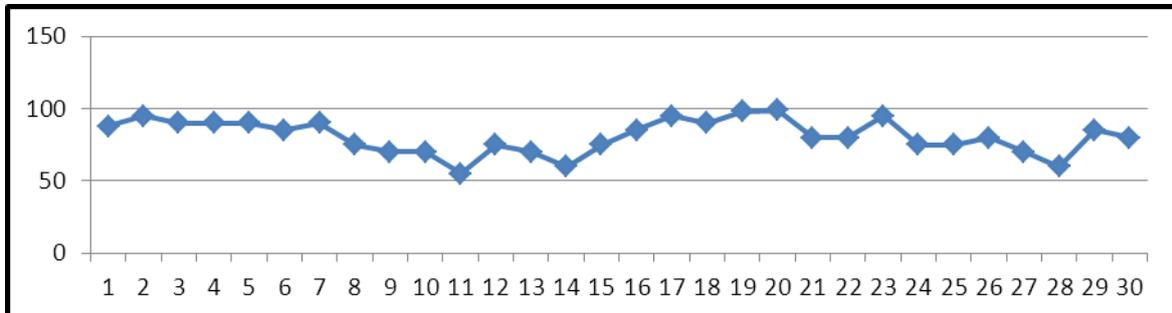


Figure (5) intensity of daily training load of competitive exercises (game training)

Final part

This part contains the warm down exercises that help recovery of the daily training load in accordance with the aerobic energy systems. Intensity of training used during this part ranges from (35%: 40%) of the maximum intensity of player. In addition, the total time of this section was (160) minutes; that is, with percentage of (5%) of the total time of the proposed program under research.

Implement steps of the research

Scientific treatments

- The first application was made to the motor capacities tests under research on Wednesday, 15/10/2014 AD.
- The second application was made to the special motor capacity tests under research on Thursday, 23/10/2014 AD.
- Form of the attack performance analysis under research during the period from 15/10/2014 to 23/10/2014 AD.

Post measurement:

- Post measurement was done on Monday, 27/10/2014 in (5) trial matches of the players the sample of the research.
- The post measurement was done on Thursday, 28/10/2014 in the special motor capacity test under research.

Application of training program without use of biorhythm curve.

- The training program was applied from Thursday, 30/10/2014 to Tuesday, 09/12/2014 AD

Post measurement of the training program without use of the biorhythm curves.

- The second measurement was done on Monday and Tuesday, 15, 16/12/2014 on the same conditions and standards of the post measurement.

Application of the training program using the biorhythm curves

- The training program was applied from Monday, 22/12/2014 to Saturday, 31/01/2015 AD.

Post measurement of the program using the biorhythm curves

- Post measurement was used on Monday and Thursday, 2, 3/02/2015 on the same conditions and standards of post measurement.

Statistic treatment

The SPSS program was used to statistically treat the data, and the following statistic means were applied:

- Arithmetic Means. Median Mode.
- Standard Deviation Standard Deviation.
- Skewness coefficient
- Pearson's Simple Correlation Coefficient.
- Improvement rates in percentages

Statistic significance of (0.05). The research was satisfied with the results.

Article (5)
Differences and percentage of improvement between the post and pre measurement in the level of special motor capacities under research for the training program without use of biorhythm curves

Variables		Unit of Measurement	First measurement	Second measurement	Difference between measurement	Percentage of improvement %		
			Value	Value				
Special physical motor capacities	Motor response speed	Straight Counter Box GyakuSuki	Right	Sec	1.755	1.654	0.101	6.106
		Semi-circular short counter kick KezamiOraMuwashyGery	Left	Sec	2.009	1.911	0.098	5.128
	Transitional Speed	Moving forward	Left	Sec	2.476	2.387	0.089	3.729
		Back retreat	Right	Sec	2.633	2.521	0.112	4.443
	Speed and agility of leg movement in the original and secondary directions		Right	Sec	31.901	30.154	1.747	5.794
			Left	Sec	31.497	30.211	1.286	4.257
			Free	Sec	31.206	30.001	1.205	4.017
	Motor speed in the		Ri	No.	11	13	2	18.182

Pendulum step		gh t					
		Le ft	No.	11	13	2	18.182
Speed force	Counter straight front box GyakuSuki (45 Sec(.	Ri gh t	No.	23	26	3	13.043
	Semi-circular short counter kick KezamiOraMuwash yGery10) Sec(.	Le ft	No.	11	13	2	18.182
Speed endurance	Counter straight front box GyakuSuki (20 Sec(.	Ri gh t	No.	41	45	4	9.756
	Semi-circular short counter kick KezamiOraMuwash yGery20) Sec(.	Le ft	No.	21	23	2	9.524
Performance endurance	Counter straight front box (GyakuSuki 45 Sec(.	Ri gh t	No.	71	76	5	7.042
	Semi-circular short counter kick KezamiOraMuwash yGery45) Sec(.	Le ft	No.	36	39	3	8.333

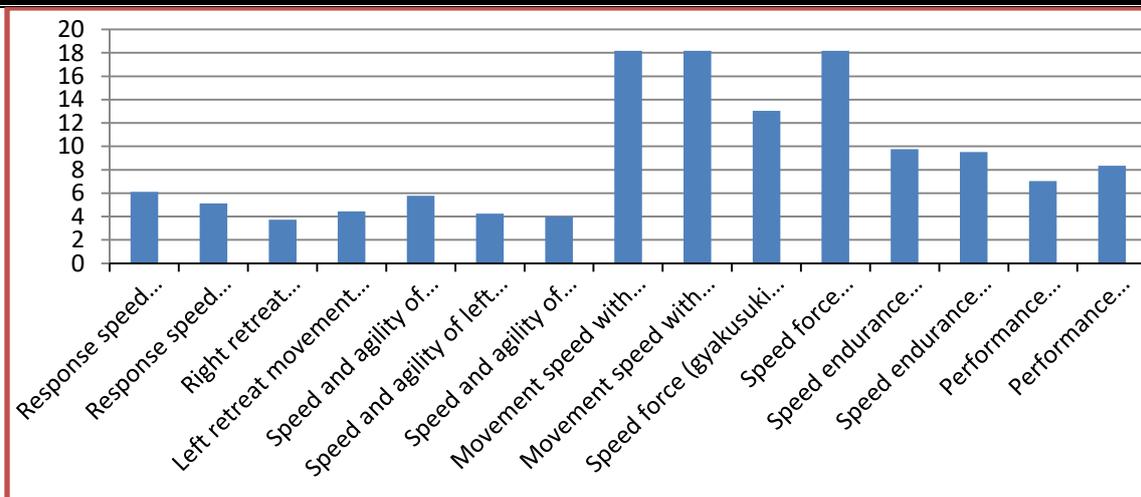


Table (6)

Differences and percentages of improvement between the post measurement without use and with use of the biorhythm curves of player in the level of special motor capacities under research

Variables		Unit of Measurement	Post measurement without use	Post measurement with use	Difference between the two measurements	Percentage of improvement %		
			Value	Value				
Special physical motor capacities	Motor response speed	Straight Counter Box GyakuSuki	Right	Sec	1.654	1.434	0.22	15.342
		Semi-circular short counter kick KezamiOraMuwashy Gery	Left	Sec	1.911	1.675	0.236	14.090
	Transitional Speed	Moving forward	Left	Sec	2.387	2.011	0.376	18.697
		Back retreat	Right	Sec	2.521	2.233	0.288	12.897
	Speed and agility of leg movement in the original and secondary directions		Right	Sec	30.254	29.012	1.242	4.281
			Left	Sec	30.111	29.002	1.109	3.824
			Free	Sec	30.001	28.013	1.988	7.097
	Motor speed in the Pendulum step		Right	.No	13	15	2	15.385
			Left	.No	13	15	2	15.385
	Spec	Speed force	Counter straight front box GyakuSuki (.45 Sec	Right	.No	26	29	3

	Semi-circular short counter kick KezamiOraMuwashy (. Sec10)Gery	Lef t	.No	13	15	2	15.385
Speed endurance	Counter straight front box GyakuSuki (.(20 Sec	Rig ht	.No	45	51	6	13.333
	Semi-circular short counter kick KezamiOraMuwashy (. Sec20)Gery	Lef t	.No	23	26	3	13.043
Performance endurance	Counter straight front box (.(GyakuSuki 45 Sec	Rig ht	.No	76	84	8	10.526
	Semi-circular short counter kick KezamiOraMuwashy (. Sec45)Gery	Lef t	.No	39	43	4	10.256

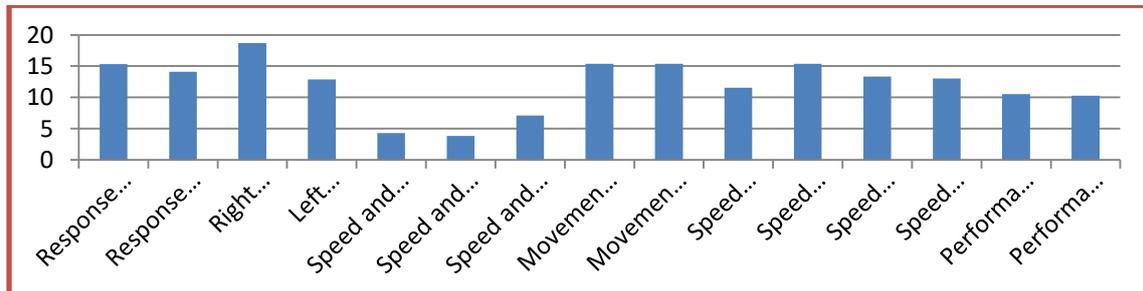


Figure (7) Percentage of improvement of post measurement without use and with use of biorhythm curves in the training program under research

Tables (5 and 6) and figures (6 and 7) indicate differences in the values of test of special motor capacities with the tactical attack performance of the player the sample of the research between the pre measurement and post measurement of the first training program without use of the biorhythm indicators, and the post measurements of the training program without use of the indicators of biorhythm and post measurement of the training program using the indicators of monthly biorhythm for the player the sample of the research. The lowest and higher values of differences were (0.069: 5.000) and (0.22: 6) and the least and highest percentage of

improvement (3,729, 18,182%) (3,824, 18,697) for the favor of post measurement (without use, with use) of biorhythm indicators respectively.

In addition, there appear differences in the values of motor response speed test for the counter box- GyakoSuki (right) and the Semi-circular short counter kick- KezamiMawashiGery (Left) between the pre and post measurements of the first training program without use of the biorhythm indicator, and between the post measurement of the training program without use of the biorhythm indicators and post measurement of the training program using the monthly biorhythm indicators of the player the sample of the research. The differences of values were (0.098, 0.101), (0.222, 0.236), and the percentage of improvement were (6.106, 5.128%) (15.234, 14.090%) for the favor of post measurement (with use, without use) of biorhythm indicators respectively.

There are differences in the values of transitional speed forward and (right) and retreat (back) between the pre measurement and post measurement of the first training program without using the biorhythm indicator and post measurement of the training using the monthly biorhythm indicators of the player the sample of the research. The differences of values were (0.089, 0.112), (0.376, 0.288), and the percentages of improvement were (3.729, 4.442%), (18.697, 12.897%) for the favor of post measurement (without use, with use) of biorhythm indicators respectively.

There are statistically significant differences between the test values of the original and secondary approaches of speed and agility of leg movement (free, left, right) between the pre measurement and post measurement of the first training program without using the biorhythm indicator and post measurement of the training using the monthly biorhythm indicators of the player the sample of the research. The differences of values were (1.747, 1.286, 1.205), (1.242, 1.109, 1.988), and the percentages of improvement were (5.794, 4.257, 4.017%), (4.281, 3.824, 7.097%) for the favor of post measurement (without use, with use) of biorhythm indicators respectively.

There are differences in the values of Motor speed in the Pendulum step(Right ◊ Left) between the pre measurement and post measurement of the first training program without using the biorhythm indicator and post measurement of the training using the

monthly biorhythm indicators of the player the sample of the research. The differences of values were (2.000, 2.000), (2.000, 2.000), and the percentages of improvement were (18.182, 18.182%), (15.385, 15.385) for the favor of post measurement (without use, with use) of biorhythm indicators respectively.

There are differences in the speed force test values in experimental time of (10 second) for the counter box- GyakuSuki (Right) and Semi-circular short counter kick- KezamiMawashi Geri (Left) between the pre measurement and post measurement of the first training program without using the biorhythm indicator and post measurement of the training using the monthly biorhythm indicators of the player the sample of the research. The differences of values were (2.000, 3.000), (3.000, 2.000), and the percentages of improvement were (13.043, 18.182%), (11.538, 15.385%) for the favor of post measurement (without use, with use) of biorhythm indicators respectively.

In addition, there are differences in the values of speed endurance tests in experimental time of (20 sec.) for the counter box- gyakusuki (right) and the semi-circular short counter kick- kezamimawashigery (left) between the pre measurement and post measurement of the first training program without use of biorhythm indicators, and between the post measurement of the training program without use of biorhythm indicators and post measurement of the training program using the monthly biorhythm indicators of the sample of the research. The differences of values were (2.000, 4.000), (6.000, 3.000), and the percentages of improvement were (9.756, 9.524%), (13.333, 13.043%) for the favor of post measurement (without use, with use) of biorhythm indicators respectively.

There appear differences in the performance endurance test values in experimental time of (45 sec.) for the counter box- gyakusuki (right) and the semi-circular short counter kick test – kezamimawashigeri (left) between the pre measurement and post measurement of the first training program without use of the biorhythm indicators, and between the post measurement of training program without use of the biorhythm indicators and post measurement of the training program using the indicators of the player's monthly biorhythm indicators of the player the sample fo the research. The differences of values were (3.000, 5.000), (4.000, 8.000), and the percentages of improvement were (7.042, 8.333%),

(10.526, 10256%) for the favor of post measurement (without use, with use) of biorhythm indicators respectively.

This improvement may be attributed to the post measurement of the first phase of the program; that is, without use of biorhythm to the training program because of the special exercises it contains for development of the special motor capacities under research.

The improvement of final or post measurement of the second phase of the training program using the biorhythm indicators for the post measurement of the first phase of the program into formation of the training loads of the training program in accordance with the biorhythm curves and individual rating of the player the sample of the research during the second phase of implementation of the training program under study. In addition, this improvement may be attributed to the simultaneous effect of biorhythm by rationalizing the properties of training loads directed to the special motor capacities under study that contributed to the positive effect and improvement in the second phase of the program. This agrees with the notes of Haddad, M et al (2011); Emad Al Sersy (2011 AD); Omar Labib (2002 AD); Ibrahim Al Ebiary (2007); Mohamed Ali ABdelrahman (2009, 2013 AD); Heba Mohamed Ali Hassan (2012 AD); Wael Hassan Abu El Khir (2014); Moataz Abu Esaad (2014 AD). (29), (5), (7), (13), (14), (1), (14, 15), (18), (6), (9), (20), (19), (17).

Table (7)
Differences and percentage of improvement of the effectiveness of tactical performance determinants for the matches of pre and post measurement without use of biorhythm indicators in the training program under research

Variables			Pre measurement		Post measurement		Difference in effectiveness	Percentage of improvement %
			Frequency	Effectiveness	Frequency	Effectiveness		
Stand by	Right	Right	22	9	31	20	11	122.222
	Left	Left	45	23	52	28	5	21.739

Attack skills	Simple	Arms	Right	11	8	14	8	0	0.000			
			Left	9	3	9	4	1	33.333			
		Legs	Right	2	2	8	4	2	100.000			
			Left	11	3	12	9	6	200.000			
	Mixed	Arms		15	8	18	12	4	50.000			
		Legs		6	3	7	3	0	0.000			
		Mixed		13	5	15	8	3	60.000			
	Types of attack	Direct attack		Simple	9	3	14	11	8	266.667		
				Mixed	7	6	11	9	3	50.000		
		Counter attack	Sen no sen		Simple	15	9	13	9	0	0.000	
Mixed					2	1	3	1	0	0.000		
Tai no sen				Simple	3	2	7	5	3	150.000		
				Mixed	3	1	6	1	0	0.000		
Ta tai no sen				Simple	2	1	3	2	1	100.000		
				Mixed	10	4	6	3	-1	-25.000		
Gon use n				Simple	1	1	4	3	2	200.000		
				Mixed	3	1	8	2	1	100.000		
Gon use n				Simple	3	1	2	1	0	0.000		
				Mixed	9	2	6	1	-1	-50.000		
Field areas			A	B	C	A	5	2	7	4	2	100.000
						B	6	2	9	5	3	150.000
						C	4	1	7	4	3	300.000
			D	E	F	D	7	3	11	6	3	100.000
	E	21				14	18	11	-3	-21.429		
	F	8				3	9	5	2	66.667		
	G	H	I	G	4	2	7	4	2	100.000		
				H	5	3	7	4	1	33.333		
				I	6	2	8	5	3	150.000		
Game time	First Tuesday			19	8	25	13	5	62.500			
	Second Tuesday			22	13	31	15	2	15.385			
	Third Tuesday			26	11	27	20	9	81.818			
Game	Failed			40	0	46	0	0	0.000			

me res ult s	One point	24	24	30	30	6	25.000
	Two points	1	2	3	6	4	200.000
	Three points	2	6	4	12	6	100.000

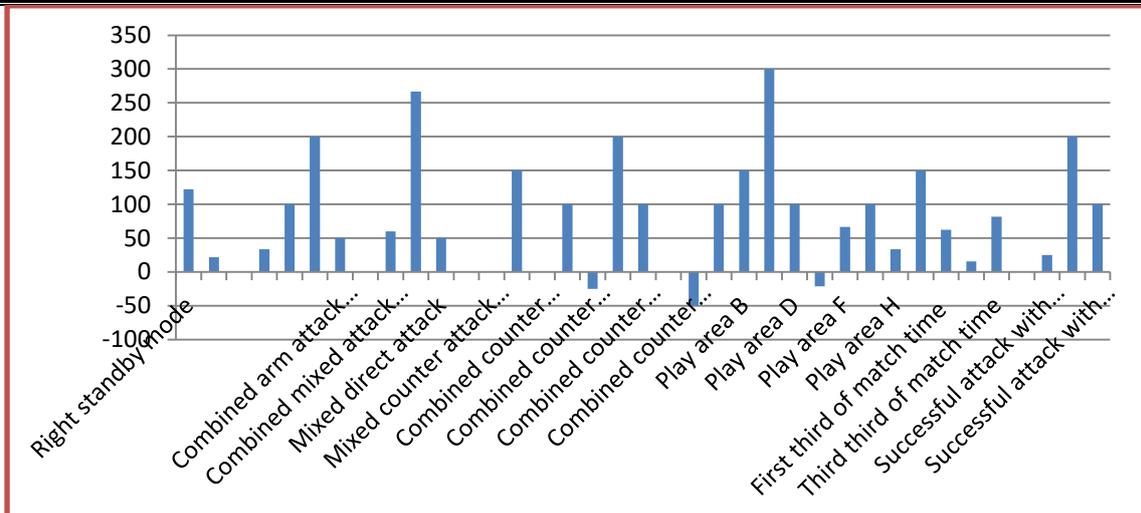


Figure (8) percentage of improvement of the effectiveness of tactical performance of the values of pre and post measurements without use of biorhythm indicators in the training program under research

Table (8 /1)

Differences and percentage of improvement of the effectiveness of game results for the determinants of tactical performance of the post measurement without use and with use of biorhythm curves in the training program under research.

Variables			Pre measurement		Post measurement		Difference in effectiveness	Percentage of improvement %
			Freq uenc y	Effec tiven ess	Freq uenc y	Effec tiven ess		
Stan dby mode	Right	Right	31	20	42	34	14	70.000
	Left	Left	52	28	47	39	11	39.286
Attac k skills Simp le	Arm s	Right	14	8	14	13	5	62.500
		Left	9	4	11	8	4	100.000

		Legs	Right	8	4	7	6	2	50.000
			Left	12	9	14	11	2	22.222
Mixed	Arms			18	12	23	19	7	58.333
	Legs			7	3	11	9	6	200.000
	Mixed			15	8	9	7	-1	-12.500

Table (8 /2)

Differences and percentage of improvement of the effectiveness of game results for the determinants of tactical performance of the post measurement without use and with use of biorhythm curves in the training program under research.

Variables			Pre measurement		Post measurement		Difference in effectiveness	Percentage of improvement %
			Frequency	Effectiveness	Frequency	Effectiveness		
Type of attack	Direct	Simple	14	11	19	20	9	81.818
		Mixed	11	9	18	13	4	44.444
	Sen no sen	Simple	13	9	9	8	-1	-11.111
		Mixed	3	1	2	1	0	0.000
	Tai no sen	Simple	7	5	6	5	0	0.000
		Mixed	6	1	9	4	3	300.000
	Ta tai no sen	Simple	3	2	3	2	0	0.000
		Mixed	6	3	3	2	-1	-33.333
	Gon usen	Simple	4	3	4	8	5	166.667
		Mixed	8	2	9	5	3	150.000
	Gon usen	Simple	2	1	5	4	3	300.000
		Mixed	6	1	2	1	0	0.000

Field areas	A	B	C	A	7	4	8	9	5	125.000
				B	9	5	10	6	1	20.000
				C	7	4	9	10	6	150.000
	D	E	F	D	11	6	11	8	2	33.333
				E	18	11	12	10	-1	-9.091
				F	9	5	9	9	4	80.000
	G	H	I	G	7	4	10	8	4	100.000
				H	7	4	11	6	2	50.000
				I	8	5	9	7	2	40.000
Game time	First Tuesday			25	13	30	28	15	115.385	
	Second Tuesday			31	15	28	23	8	53.333	
	Third Tuesday			27	20	31	22	2	10.000	
Game results	Failed			46	0	36	0	0	0.000	
	One point			30	30	41	41	11	36.667	
	Two points			3	6	4	8	2	33.333	
	Three points			4	12	8	24	12	100.000	

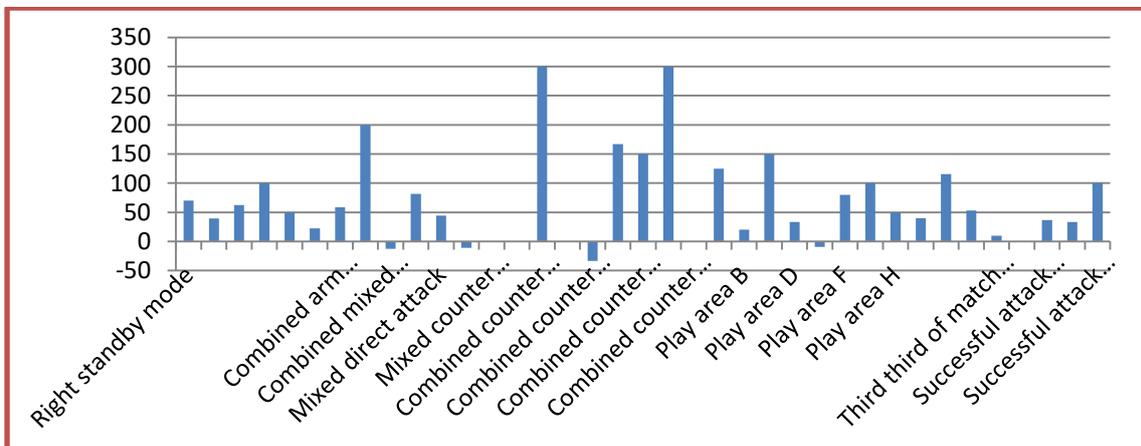


Figure (9) Percentage of improvement of the effectiveness of match results for the determinants of tactical performance of post measurement without use and with use of biorhythm indicators in the raining program under research

Tables (7, 8), figures (8, 9) show that there are differences and improvement of the effective values of determinants of tactical attack performance of the player the sample of the research between the

post measurement and pre measurement of the training program without use of biorhythm indicators, and between the post measurement of the training program with and without use of monthly biorhythm indicators of the player the sample of the research. The lowest and highest value of differences ranged between (1:11) and (1:15), and the lowest and highest percentage of improvement was (15,385, 300%) and (10, 300%) for the favor of post measurement (with and without) use of biorhythm indicators respectively.

There are differences and improvement of the effectiveness of the values of attack readiness position as a determinant of tactical attack performance of the player the sample of the research between the post measurement and pre measurement of the training program without use of biorhythm indicators, and between the post measurement of the training program with and without use of monthly biorhythm indicators of the player the sample of the research. The lowest and highest value of differences ranged between (11, 5) and (11:14), and the percentage of improvement was (122.222, 21.739%) and (70.000, 39.286%) for the favor of post measurement (with and without) use of biorhythm indicators respectively.

There are differences and improvement of the effectiveness of the values of simple (individual) attack styles by (right, left) arms, and (left, right) legs, and the mixed attack styles (arms, legs, mixed) as determinant of the tactical attack performance of the player the sample of the research between the pre measurement and post measurement of the training program without use of biorhythm indicators, and between the post measurement of the training program without use and with use of monthly biorhythm indicators of the player the sample of the research. The value of differences ranged between (0,1,2,6,4,0,3), (7, 2, 2, 4, 5, 6, -1). The percentage of improvement was (0.000, 33.33, 100, 200, 50.000, 0.00, 60.000%), (62.500, 100.00, 50.000, 22.22, 58, 333, 200.000, 12.500%) and (70.000, 39.286%) for the favor of post measurement (with and without) use of biorhythm indicators respectively.

There are differences and improvement of the effectiveness of the values of simple direct attack and types of counter attack (Sen no sen, tai no sen, tat ay no sen, juno sen, juju no sen) (simple, mixed) as determinant of tactical attack performance of the player

the sample of the research between the post measurement and pre measurement of the training program without use of monthly biorhythm indicators of the player the sample of the research. The value of differences ranged between (1 2 , 1- , 1 , 0 , 3 , 0 0 , 3 , 8 0 , 3 , 3 , 5 , 1- , 0 , 3 , 0 , 0 , 1- , 4 , 9) , (1- - 0 ,) , and the improvement rate was (100.00 , 0.000 , 150.000 , 0.000 , 0.000 , 50.000 , 266.667 , 0.000 , 11.111-) , (50.000 , 0.000 , 100.000 , 200.000 , 25.000- , 300.000 , 150.000 , 166.667 , 33.333- , 0.000 , 300.000 , 0.000 %0.000) for the favor of post measurement (without use, with use) of the biorhythm indicators respectively.

There are differences and improvement of the effectiveness of the nine areas of field (A, B, C, D, E, F, G, H, I, J) as determinant of tactical attack performance of the player the sample of the research between the pre measurement and post measurement of the training program without use of biorhythm indicator and between the post measurement of the training program without use and with use of the monthly biorhythm performance of the player the sample of the research. The value of differences ranged between (,3-,3, 3,3 , 2 3 , 1, 2, 2) , (2 , 4, 4 , 1- , 2 , 6 , 1 , 5) , and the percentage of improvement was (21.429- , 100.000 , 300.000 , 150.000 , 100.000) %150.000 , 33.333 , 100.000 , 66.667) , (, 150.000 , 20.000 , 125.000 %40.000 , 50,000 , 100.000 , 80.000 , 9.091- , 33.333) for the favor of post measurement (without, with use) of biorhythm indicators respectively.

There are differences and effectiveness of the values of parts of the game as the three (first, second and third) as determinants of tactical attack performance of the player the sample of the research between the pre measurement and post measurement of the training program without use of biorhythm indicators, and between the post measurement of the training program without using the monthly biorhythm indicators of the player the sample of the research. The value of differences ranged between (5, 2, 9) and (2, 8, 15), and the percentage of improvement was (62.500, 15.385, 81.818%) and (151.385, 53.333, 10.000%) for the favor of post measurement (with, without) use of biorhythm indicators respectively.

There are differences and improvement in the effectiveness of the calculated values of games (one point, two points, three points) as

determinants of tactical attack performance of the player the sample of the research between the pre measurement and post measurement of the training program without use of biorhythm indicators, and between the post measurement of the training program without using the monthly biorhythm indicators of the player the sample of the research. The value of differences ranged between (6,4,6) and (11,2,12), and the percentage of improvement was (100.000 ÷ 200.000 ÷ 25.000%) and (÷ 33.333 ÷ 36.667 100.000%) for the favor of post measurement (with, without) use of biorhythm indicators respectively.

Improvement of post measurement in the first phase of the program after implementation without use of biorhythm indicators is attributed to the effect of the structural content of the proposed training program that was done through the similar exercises that conform with the performance of skill styles as the muscular work, speed of performance and track of force made as well as direction and application of rated training loads individually in accordance with the use of biorhythm curves through the direction of their formation, and the use of periodic training method that was applied through the training unit, in addition to the implementation of leg movement exercises and mixing them with the various skill styles of the player using different types of attack and training in them in single and dual forms similar to what happens in the games, and training in them as training stations using the direct attack approach, and other training stations using the counter attack (su, nu, sen, tai no sen, ta tai no sen, gu nu sen, gugusen). In addition, the training loads are rated in accordance with the characteristics of training loads dynamisms as speed and force are in conformity in accordance with the direction of muscular work, in addition to the use of the games specified with duties and the various attack styles and situations used in playing times during the respective part "game training" that contained competitive exercises in the form of rated tactical duties of performance with maintenance of the principle of individual differences of players, which was reflected on the level of enforcement of tactical activity and increasing effectiveness of successful attack and overall attack during the game.

Improvement in the second measurement of the second phase of application of training program using biorhythm is due to the components of training program itself and their rating using biorhythm curves to direct training loads of tactical performance determinants in the players of the actual duel competition (kumite) in

karate, which increases the product of the tactical sides of players and the skill styles that can be used in the suitable movements according to the distance between competitor and area to be moved in to make the suitable type of attack to the competition situation between the competitor and him, which increased the effectiveness of attack and economy of effort. This is in agreement with the notes of Ahmed Mohamed Ibrahim (2005, 2011, 2013), Haddad, M et al (2011), Heba Mohamed Ali (2012), Ahmed Mahmoud Ibrahim and EmanRashad (2014), AlaaHamdyAzmy (2014), WalaaHamdyFarghaly (2014), (2,3,4), (29), (18), (6), (9), (20).

Conclusions:

The content of proposed training program using the determinants of monthly biorhythm track for direction of training loads of special motor skills in the tactical performance showed positive effect on the values of improvement of special motor skills of the player the sample of the research from the proposed training program without use of the determinants of monthly biorhythm track. The percentages of improvement were as follows:

- Improvement of motor response speed to the counter box, gyakusuki (right) and the semi-circular short counter kick- KezamiMawashi Geri (left) with percentage of (15.342, 14.090%) respectively.
- Improvement of transitional speed forward (left) and back retreat (right) with percentage of (12.897, 18.697%) respectively.
- Improvement of the values of original and secondary directions test of the speed and agility of leg movement (right, free, left) with percentage of (4.281, 3.824, 7.097) respectively.
- Improvement of motor speed in the pendulum step (left, right) with percentage of (15.385) respectively.
- Improvement of speed force in experimental time of (10 sec.) of the counter box- Gyakusuki (right) and semi-circular short counter kick- kezamimawashigeri (left) with percentage of (11.538, 15.385%), respectively.
- Improvement of speed endurance in experimental time of (20 sec.) for the counter box, gyakuzuki (right) semi-circular short counter kick test, kezamimawashigeri test (left) with percentage of (10.526, 10.256%) respectively.

In addition, the content of proposed training program using the determinants of monthly biorhythmic track to direct the training loads of tactical performance have positive effect on the values of improvement of the tactical performance determinants of the player

the sample of the research for the proposed training program without use of the determinant of monthly biorhythm track as improvement of values of effectiveness was as follows:

- Attack standby position (left, right) as determinant of attack tactical performance with improvement percentage of (70.000, 39.286%) respectively.
- Simple attack styles (single) with (left, right) arms and (left, right) legs, and the mixed attack styles (arms, legs, mixed) as determinant of tactical performance with percentage of (62.500, 100.00, 50.000, 22.22, 58.333, 200.000, -12.500%) respectively.
- Types of simple direct attack and mixed attack and types of counter attack (sen nu sen, tai nu sen, ta tai nu sen, gu nu sen, gugu nu sen) (simple, mixed) as determinant of tactical and attack performance with improvement percentage of (300.000, 150.000, 166.667, -33.333, 0.000, 300.000, 0.000, 0.000, 11.111- 0.000%) respectively.
- The nine areas of the field (A, B, C, D, E, F, G, H, I) as determinant of the tactical attack performance with improvement percentage of (125.000, 20.000, 150.000, 33.333, 9.091, 80.000, 100.000, 50.000, 40.000) respectively.
- Points calculated in games (point, two points, three points) as determinant of the tactical attack performance with improvement percentage of (36.667, 33.333, 100.000%) respectively.

Recommendations:

- To use the content of building structure that forms the proposed training program as reference by using the biorhythm indicators to direct training loads of the tactical performance in the players of the actual competition "Kumite" in karate.
- To pay attention to the research plan directed to improve the motor capacities of kumite players in karate through the other age groups.
- To pay attention to the research plans dedicated to the development of determinants of tactical performance of kumite players in karate during the other age groups to complete scientific building of karate.
- To pay attention to the research plans dedicated to the development of motor capacities of kata players in karate.
- To pay attention to the research plans dedicated to the development of technical and skill sides of kata players in karate.

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Summary of the research:

Development of the Determinants of tactical performance with significance of the monthly Biorhythm and their effect on the results of Kumite games in Karate

The research aims at identifying the development of determinants of tactical performance with the significance of monthly biorhythm indicators and their effect on the results of Karate. The researcher used the experimental methodology with the pre-post measurement of one player of the Egyptian national team for kumite of men. The key results were as follows:

- Improvement of motor response speed of the counter box- GyakuSuki (right) and semi-circular short counter kick – kezamimawashigeri (left) with percentage of (15.342, 14.090%), respectively.
- Improvement of transitional speed forward (left) and back retreat (right) with percentage of (12.897, 18.697%) respectively.
- Improvement of the values in the test of original and secondary direction concerning speed and agility of leg movement (right, free, left) with percentage of (7.097, 3.824, 4.281) respectively.
- Improvement of Motor speed in the Pendulum step (left, right) with percentage of (15.385) respectively.
- Improvement of speed force in experimental time of (10 Sec.) for the counter box, gyakusuki (right) and the semi-circular short counter kick- kezamimawashigeri (left) with percentage of (11.538, 15.385%), respectively.
- Improvement of speed endurance in experimental time of (20 Sec) for the counter box- gyakusuki (right) and Semi-circular short counter kick- KezamiMawshi Geri (left) with percentage of (13.333, 13.043%) respectively.

In addition, the content of the proposed training program using the monthly biorhythm track to direct the training loads of tactical performance showed positive effect on the values of improvement of the determinants of tactical performance of the player the sample of the research from the proposed training program without use of the determinant of monthly biorhythm as the values of improvement were as follows:

- Position of standby for attack (Left, Right) as determinant of tactical attack performance with improvement percentage of (70.000, 39.286%) respectively.
- Simple (single) attack styles with arms (left, right) and legs (left, right) and the mixed attack styles (arms, legs, mixed) as

determinants of tactical attack performance with improvement percentage of (200.000, 58.333% 22.22, 50.000, 100.00, 62.500 12.500-).

- Types of simple and composite direct attack and types of counter attack (sen nu sen, tai nu sen, ta tai nu sen, gu nu sen, gugu nu sen) (simple, mixed) as determinant of tactical performance with improvement percentages of (300.000% 0.000 , 0.000, 11.111-) 0.000 ,300.000, 150.000, 166.667 , 33.333-, 0.000,) respectively.
- Nine areas of field (A, B, C, D, E, F, G, H, I) as determinant of tactical attack performance with improvement percentages of () , 100.000 , 80.000, 9.091-% 33.333, 150.000, 20.000, 125.000 40.000, 50,000) respectively.
- Parts of game time as the three parts (first, second and third) are determinants of tactical attack performance with improvement percentage of (151.385, 53.333, 10.000%) respectively.
- Points calculated in games (one, two three) points as determinants of tactical attack performance with improvement percentage of (36.667, 33.333, 100.000%) respectively.