

The effect of using kinetic rhythm on the level of skill performance and the digital achievement of javelin throwing effectiveness for youth

WILLIAM LEWIS WILLIAM 

College of Physical Education and Sports Sciences, Basra University, Iraq

ABSTRACT

The trainer's knowledge of the kinetic rhythm well gives him an advantage in the ability to objectively evaluate the level of performance and stand on the strengths and weaknesses of that performance, Thus, it is easy for him to direct and modify the course of training to serve the level of mastery of movement technicality and improve the physical abilities of that event or sports skill by distributing the strength ratios to each part of the movement and in proportion to the importance of each part of the movement which represents the effective dynamic dimension of the movement. the kinetic rhythm ultimately means the balance of the parts of the movement in terms of the forces exerted at the specified times. The researcher used the experimental approach with a dual design using the pre-post measurement of two equivalent groups, one control and the other experimental. The researcher reached the following conclusions. The rhythm creates an optimal exchange between contraction and extension in the muscles, making the performance economical for the energy expended. The rhythm works to delay the appearance of fatigue on the players and therefore because contraction and extension help to speed up blood circulation and this means supplying the muscles with the oxygen and energy needed to perform the movement. The correct rhythm of the movement increases the level of performance and it helps the player move his body parts in the correct path of movement and the rhythm of the movement helps in identifying the parts of the movement that need a higher rate of strength.

Keywords: Kinetic rhythm; Skill performance.

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 **Corresponding author.** College of Physical Education and Sports Sciences, Basra University, Iraq.

E-mail: juninj.il@yahoo.com

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INTRODUCTION

Recent scientific research opinions unanimously agree that the kinetic rhythm is of great importance in the sports field, as it is considered one of the distinguishing characteristics of each movement skill, especially in sports, which can be judged on the quality, nature and extent of learning and mastering the skills in all kinetic activities. The kinetic rhythm has great importance in learning, mastering and the development of the various kinetic performances in the sports field in general, the javelin throwing is a movement sentence with specific and variable rhythms that we see in its kinematic content and feel it and react upon its direction, it depends on the kinematic compatibility and accuracy of performance according to certain times that follow the kinetic rhythm. The javelin throwing activity is one of the sports activities that is characterized by the clear movement rhythm of all stages of performance, and this requires constant and balanced muscle tension throughout the periods of practice, this constitutes a kind of difficulty in learning the skills of this event, especially those who need an element of suspense in their educational and training programs, “so, a certain amount of kinetic rhythm must be available among practitioners to achieve the objectives of the learning process correctly and quickly by focusing on the attention to rhythm and distance control within the educational and training programs” (Basem Sarayreh et al., 2009).

The correct timing and rhythm sequence in the performance of the skill has a great role in the accuracy and control of the performance in the movement, and it helps the player to make the movements and feel them. The effectiveness of javelin is one of the individual sports activities carried out by the individual and therefore depends on his abilities in fulfilling the motor duty (Magida Bahaa El Din Alsaied Obeid, 2009), It has also a great importance in physical education programs, and easily choose what is appropriate of all ages, the javelin event provides the individual with the skills that will continue with him to be practiced in the future to develop his physical, psychological and social abilities. On the importance of the elements of fitness and muscle strength for the effectiveness of javelin, research and studies have shown a direct relationship between the results of sports and the level of growth of muscle strength and fitness or some of its elements in javelin players, and that the development of some elements of physical fitness that have the purpose to master the movements listed in the program , so as to be consistent development process in nature with the nature of muscular contraction when performing exercises. Due to the importance of kinetic rhythm as the smooth expression of tension and relaxation, constriction and diastolic, because it reflects the flow of power in time stages, each organic movement carried out by the individual shows a time methodology that constantly repeats its basic elements, kinetic rhythm plays an important role as an important element in the physical fitness of the individual and for specialists in the field of sports education, including students of the colleges of Physical education, The effectiveness of javelin from the athletics competitions included in the college curriculum aims to throw the spear to the farthest possible horizontal distance and this requires the consolidation of the forces in the stages of the course of power for the parts of the movement (Sarih Abdul Karim & Talib Faisal, 2001), it means to show the dynamic side of the movement time so that the student can recognize its rhythm and explain the distribution of physical effort according to the requirements of each part of the movement, its own performance, thus becoming the dynamic rhythm of one of the effective means in shaping the path of power.

Because compatibility in performance is the basis in mastering all sports, especially difficult games such as the effectiveness of javelin throwing that needs physical abilities and rhythmic motor compatibility when practicing them, so it is necessary to pay attention to the development of rhythmic motor abilities for practicing students to raise and improve the level of performance effectively javelin throwing. The importance of research highlights that the rhythm of movement has an important effect as “*rhythm is a form of organization for both the temporal dimension of the work or relaxation of muscles in each time unit of the first dimension*

i.e. the dynamic dimension, the temporal dimension means the time zones of each part of the movement, which in itself is a measure of both the processes of motor learning and progress at the level, and the mechanical dimension means a standard for the forms taken by the forces of the accompanying movement, and in each part of which it can be measured by the amount of energy exerted or by modern devices" (Rajaa Mahmoud Abu Allam, 2010).

Research problem

The means of education differ from one subject to another according to the nature of teaching the scientific subject and its needs, the effectiveness of throwing the javelin is one of the activities that have a special character that needs special means that work to make it easy to learn and absorb it, many technical means have appeared to teach kinetic skills such as: displaying pictures - movies - Video clips, which helped advance the educational process, including kinetic rhythm." *The rhythm is one of the effective means to aid in the learning process, as it is linked to the motor sensation and a helping means to clarify the movement and facilitate its explanation" (Abu Ala Ahmed Abdel - Fattah & Mohamed Sobhi Hassanein, 1997).*

Through the work of the researcher as a teacher in the field of training and education and the teaching in the college of Physical Education and Science Sports article Athletics competence javelin observed during his teaching javelin for the first phase of the college of Physical Education and Sports Science , University of Basra having difficulty to some students in the sense of performance The kinematic of the rhythmic form by throwing the javelin, knowing that the rhythm is very important for the coach to know the path of strength, its variety during the movement and its basic skills, especially in throwing the javelin . What pushed the researcher to think about preparing some exercises and trainings to overcome this difficulty and the need for a sense of movement rhythm and fluid learning between tension and relaxation. Also, the researcher noticed that there are deficiencies and lack of interest from most of the trainers and teachers in the subject of athletics in the movement rhythm directed at the different educational stages, especially in the university level, which establishes the stage of achievement. The lack of focus on the movement rhythm in teaching and developing javelin skills in order to achieve the required goals, which reflected negatively on the level of sports education students and its position within the academic program, as it has often become seen as a secondary activity that can use its time in serving some lessons for academic courses Other, and Failure to clarify the dynamic temporal aspect of the movement and the absorption of the kinetic rhythm of it, which led to the low level of skilled performance of students in the effectiveness of javelin throwing, which needs muscle strength and how to distribute the physical effort according to the kinetic rhythm on the parts of the movement appropriately.

Research objectives

1. Develop a proposed educational program using the dynamic rhythm of the javelin event among students of the Faculty of Physical Education and Sports Sciences at Basra University .
2. Identify the impact of the proposed educational program to improve the skill and digital levels of javelin throwing among students of the College of Physical Education and Sports Sciences at Basra University.

Research hypotheses

1. There are statistically significant differences between the experimental and control groups in improving the skill level in the post- measurement in favour of the experimental group.
2. There are statistically significant differences between the control and experimental groups in improving digital achievement in the post-measurement in favour of the experimental group.

Fields of research

1-5-1 Spatial field: The study was conducted in the campus and halls of the College of Physical Education and Sports Sciences / University of Basra.

1-5-2 Time field: Form 25/10/2019 to 27/1/2020.

1-5-3 Human field: Students of the College of Physical Education and Sports Sciences at Basra University, the first stage.

Research terms*Rhythm*

It is the division of movement and the division of times in a systematic division, it is the coordination of proportions in an orderly manner between distance and distance (Hamid Mohamed Koumi, 1998).

Kinetic rhythm

It is the mobility with which an athlete can carry out those movements and sports skills with regular movement weight and timing, systolic and relaxation processes in the muscle groups according to a regulated mechanism and appropriate and specific time periods. As the motor rhythm appears when each of the nervous system works economically (Ahmad Muhammad Khater et al., 1987).

Skilled performance evaluation

The skill performance was evaluated by arbitration by a panel of arbitrators consisting of five arbitrators (one judge and two arbitrators), who have experience in the field of arbitration in athletics events (javelin throw), where the score is calculated from 10.

METHODOLOGY

The researcher used the experimental approach with a dual design using the pre-post measurement of two equivalent groups, one control and the other experimental (Yaarob Khayoun, 2002).

Research community

The original community of study consists of the 30 students of the first stage of the college of Physical Education and Sports Sciences for the year 2019 /2020 studying at Basra University. It has been. The sample of the study was selected in the deliberate manner of the 20 students of physical education of the first stage of Basra University, divided into two equal groups, one experimental and the other control, the two methods of training were deliberately performed, since the first group, in which the use of kinetic rhythm was applied, to learn the skills performance of the basic movements in the directed kinetic rhythm, while the other group applied the usual program in the college. Table 1 showing the use of the study sample variables according to age, height and weight.

Table 1. Variables between the experimental and control groups and the T Calculated value for weight, height and age.

Variables	The group	Arithmetic mean	Standard deviation	T value	Level of significance
Age	Control	18.69	0.83	0.63	0.549
	Experimental	18.78	0.74		
The height	Control	161.00	5.42	0.39	0.677
	Experimental	162.50	9.23		
Weight	Control	62.50	4.14	0.24	0.791
	Experimental	59.00	4.00		

It is evident from Table 1 that the values of the torsion coefficient in growth rates (height, length and weight) were confined to $(\pm)3$ which indicates the moderation of the distribution for the members of the research sample.

Research tools

Standards Medical Scale – Restameter (to measure the length in centimetre) - Stopwatch to calculate the time to 1/100 Sec - Swedish seats 3 meters long and 20 cm wide. -A video camera to depict the performance of the skill variables under study. The stadium of the College of Physical Education and sports halls / University of Basra .Varied spears .Metric tape measure.

Data collection forms: The researcher prepared the following forms:

1. Arbitrators' opinion poll form on identifying some special skills in javelin throwing.
2. A form for recording personal data and the pre and post tests for the experimental and control group students and the variables (age - height - weight).
3. The evaluation form for the skill performance of the javelin throwing skills of the experimental and control sample under study. The study tools and the analysis of pre and post skills were evaluated by experts and referees specialized in Iraqi universities.

The tests used in the research

The researcher reviewed many sport studies that were written on kinetic learning, sports training ,tests and measurement to reach the most important tests of skills intertwined with the effectiveness of javelin throwing (Heba Abdel Azim, 2005), through that the researcher reached a set of tests that serve the course of the study and according to the Table 2.

Table 2. Tests used in the research.

The tests	Measurement	The group	Arithmetic mean	Standard deviation	T value	Level of significance
Barrow test	Second	Control	24.34	2.42	0.00	1.00
		Experimental	24.75	3.00		
Running rebound test	Second	Control	11.44	0.21	0.56	0.511
		Experimental	11.51	0.24		
Shuttle run test	Second	Control	28.50	3.25	0.49	0.623
		Experimental	29.63	3.70		
Running test 30 m	Second	Control	5.54	0.37	0.22	0.816
		Experimental	5.19	0.41		
Throwing Achievement Test	Meter	Control	32.20	0.39	0.579	0.592
		Experimental	31.35	0.40		

Scientific transactions of skill performance (kinetic skills)

Honesty of the arbitrators

The researcher filmed the students with a video camera to assess the level of skilful performance of the javelin under study, and presented the skill performance under discussion to a number of referees specialized in the field of physical education, they were asked to evaluate the performance in each movement skill, and to assign a score for each skill and evaluating it to determine the level of the size of the formal and technical errors of the skilful performance of the javelin before implementing the program. The judges made important observations and the skills were evaluated, the researcher made the necessary adjustments in light of them.

Stability of the test

The researcher calculated the stability coefficient using the method of applying the test and then reapplied it for three tests related to the rhythm of the throwing steps with a time interval of five days between the two applications on the same sample of the first survey (10 students) and outside the original sample and calculated the coefficient of correlation between the first and second applications using the Person correlation coefficient, table 3 shows the stability coefficients of the kinetic skills in question

Table 3. Stability degrees in the way the test is applied and reapplied to the two groups.

Tests	The application	Arithmetic mean	Standard deviation	Correlation coefficient value
Test 1	1st application	24.31	2.41	0.87
Barrow	2nd application	24.29	2.95	
Test 2	1st application	11.49	0.19	0.89
Running rebound	2nd application	11.52	0.21	
Test 3	1st application	28.48	3.69	0.90
Shuttle run	2nd application	28.35	3.41	

Note: Tabular (R) Values at 0.05 = 0.756

It is evident from Table 3 that the Person correlation coefficient between the first and second applications in the Barrow test reached (0.87), while in the rebound running test it reached (0.89), while in the shuttle running test it reached (0.90), which is a statistically significant correlation coefficient, which indicates Stability Tests.

Educational programs

The researcher developed the vocabulary of the educational program based on foreign and Arabic scientific references (Abdel-Rahman Abdel-Hamid Zaher, 2001; Khayriya Ibrahim Al-Sukkari, 1988; Raysan Khuraibet Majeed & Abdul Rahman Mustafa Al-Ansari, 2002; Arnold, 1986; Mufti Ibrahim Hammad) in the field of motor rhythm and then presented the educational program to the experts of motor learning, training and exercise to take their opinions for the purpose of adding, modifying or cancelling, based on the opinions of experts the program was modified to become in its final form and included 16 educational findings for the programs.

A first week: The first and second educational unit:
A general setting to focus on basic javelin movements.

Second, the second week: The third and fourth educational units
Special skill setting for javelin throwing activity.

The third week: The fifth and sixth educational units
Teaching the skill of front balance and balance with a directed motor rhythm.

Fourth week: The seventh and eighth educational units
Teach the skill of the steps of the intersection, and the skill of switching to the last step with the directed kinetic rhythm.

Fifth week: The ninth and tenth educational units
Review skills learned in the form of a light kinetic sentence with directed kinetic rhythm.

Sixth week: The eleventh and twelfth educational units

Teaching the skill of running according to the steps, then running with throwing with a directed movement rhythm.

Seventh week: The thirteenth and fourteenth educational unit

Review previous skills in the form of a sentence connected with a guided kinetic rhythm.

The eighth week: The fifteenth and sixteenth educational unit

Testing students in the form of a competition with the kinetic rhythm directed in the form of a sport kinetic sentence.

Students in the control group were given the same number of meetings but in the traditional way of teaching.

Applying the educational program

- The program was applied at the beginning of the first semester to improve the physical abilities of first-level students in the College of Physical Education and Sports Sciences in javelin throwing lectures within the athletics curriculum.
- The training program is implemented over the course of educational units and the time of the educational unit for the physical performance of the skills under discussion (60) minutes, noting that the basic educational unit includes physical performance and skills, which is (90) minutes.
- The time for skill performance is limited to a time of (60) minutes within the educational unit and without details because it will be a special part of the javelin throwing lesson.
- Each educational unit contains a variety of physical and skill training exercises.
- Each exercise has a specific period of time according to the functional capabilities of the students.

Physical exercise is diverse, affects working muscle groups and improves the physical abilities of javelin.

Program content

Introductory part

General warm-up exercises and preparing the student physically and psychologically to accept practice and training.

The main part of the educational unit

It consists of a group of various exercises for different javelin skills.

Implementation of the educational unit, which aims to improve the skill level of the student by diversity using the exercises and tools necessary to apply the exercise so that the gradient from simple to complex and easy to difficult.

Final part

Calming exercises to return the organic organs to a normal state and recovery, and to re-prepare the body to receive the next skill activity

Part of the javelin's skill performance

Program duration: (8) weeks of two units per week, the duration of the educational unit (60) Minutes, the total units to (16) Educational units.

Program procedure

1. The program was implemented by dividing the educational unit into parts: the first part, the introductory part in the unit, which is a general warm-up and preparation of the body through general exercises that pump blood into the blood vessels to receive the activity of the main part.
2. The second part is the special preparation in which the important part of the program is implemented, and it focuses on improving the skill level and digital achievement under consideration, it consists of various exercises related to javelin throwing skills.

The components of the educational unit

1. Warm-up (15) minutes, it includes general exercises (flexibility and stretching) to prepare the body.
2. The main part (40) minutes, it includes different exercises for the ability to be improved with the rest of the other abilities, each according to importance.
3. Conclusion (5) minutes, it includes calming exercises for the body to restore healing and receive the part of the preparation of skills. The educational unit was divided as follows:

Skill performance assessment

The researcher used a committee of accredited referees in the Iraqi Athletics Federation to assess the level of skill performance, as the researcher conducted an evaluation of skill performance once before implementing the program and once after application to the experimental and control groups, in order to determine the amount of improvement reached by the research sample.

An estimate scale for the javelin throwing skills selected under discussion was developed, where the overall score for each skill was evaluated with (10) scores (the degree of advanced performance), so that each skill is divided into (3), As follows:

1. The preliminary stage is worth (two grades) out of ten.
2. The main stage is worth (five marks) out of ten degrees
3. The final stage is worth (three marks) out of ten degrees

Rules for assessing the level of skill performance

The skill performance is assessed by grades from zero to ten with discounts (1 degree or 10/1(10 degrees), and the final score is the average arithmetic of the average score of four referees.

A statistical processor

In order to process the data, the researcher will use the statistical packages program for social sciences (SPSS).

PRESENTATION, ANALYSIS AND DISCUSSION OF THE RESULTS

Table 4 shows that there are statistically significant differences between the pre and post measurements in favour of the post measurement in the skill tests (n -9).

Table 5 there are significant differences between the pre and post measurements in favour of the post measurement in skill tests (N -9).

Table 4. The significance of the differences between the mean of the pre and post measurements in skill tests and the throwing achievement of the experimental group.

Tests	Measurement unit	Pre-Measure		Post-Measure		T value	Significant level
		Arithmetic mean	Standard deviation	Arithmetic mean	Standard deviation		
Barrow test	Second	24.31	2.41	23.11	3.11	0.99	Significant
Running rebound test	Second	11.49	0.89	10.76	3.22	0.66	Significant
Shuttle run test	Second	28.48	3.69	26.35	3.41	0.04	Significant
Throwing achieve	Meter	32.19	2.45	34.06	2.39	0.57	Significant

Table 5. The significance of the differences between the mean of the two measurements, pre and post, in the javelin skill tests for the control group.

Tests	Measurement unit	Pre-Measure		Post-Measure		T Value	Significant Level
		Arithmetic mean	Standard deviation	Arithmetic mean	Standard deviation		
Barrow test	Second	24.31	2.41	24.11	3.11	0.99	Significant
Running rebound test	Second	11.49	0.89	10.88	3.22	0.66	Significant
Shuttle run test	Second	28.48	3.69	28.35	3.41	0.04	Significant
Throwing achieve	Meter	31.19	2.45	32.06	2.39	0.57	Significant

DISCUSSION

The researcher believes that these differences are due to the effect of the proposed educational program that the researcher applied to the members of the research sample regularly and diligently, as well as the seriousness of its application by members of the sample and their commitment to implementing the educational units, which helped learners acquire information more easily through a directed movement rhythm. The method of the educational program applied by the researcher in providing information and knowledge skills within a direct kinetic rhythm, which helps to stabilize the information and stay the impact of learning for a long time and thus the ability to memorize and retrieve it in an easy way. When practicing any type of motor activity, the player is present in certain places determined by a certain distance requires the performance of the movement commensurate with the performance of javelin and the relationship of this place to different distances enables the player to determine accurately the skills of movement and methods and ways appropriate to the different distances of the things surrounding him. This result is consistent with many studies (Amin Anwar Al - Khouly & Usama Kamel Ratib, 1998; Bastwais Ahmed, 1997) They emphasized that *"there is a positive relationship between the feeling of running distance during an approach run and the accuracy of skilful performance"*. The researcher believes that this result is logical where the high level of motor sensation is offset by a decrease in the level of errors in the technical performance of the javelin -throwing learners, and this shows that they have a good learning ability for the insensitivity of rhythm and estimate the distance that positively affects the level of performance of javelin throwing. The researcher attributes these differences to the impact of the proposed educational program applied by the researcher to

the members of the research sample, where the resulting interaction to produce purposeful movements is in fact a process of adaptive behaviour "Movements are the only way in which the human body deals with the tool (javelin) as achieving the goal depends on the degree or extent to which the body can succeed in overcoming and controlling the external environment" (Kamal Jamil Al- Arbadi, 1983) so it can be said that the kinetic rhythm contributes to the enrichment of the process of learning and motor compatibility through the dynamic harmony of the archer and the spear, and the ability to accomplish a kinetic pattern of value or importance only if this ability is proven and it becomes possible to continue to achieve achievement (Barrow, 1984).

CONCLUSIONS

1. The education accompanying the directed movement rhythm had a positive effect on learning and improving the level of skill performance in throwing a javelin.
2. The education accompanying the directed rhythm had a positive effect on improving the level of digital achievement in throwing the javelin.
3. The accompaniment of the kinetic rhythm directed at the skilful performance gave better results than field training only in raising and improving the level of skill performance in throwing a javelin.

Recommendations

Recommendations in light of the research results, which have proven that the use of directed movement rhythm had a positive effect on learning some javelin throwing skills, the researcher recommends the following:

1. The necessity to use directed movement rhythm when teaching javelin throwing skills.
2. Conducting other studies and research and knowing the effect of directed kinetic rhythm on learning different skills on some different athletics competitions.

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