

The Effect of Physical and Mental Rhythmic Training on Middle School Students' Learning of Certain Sports Skills

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Abstract. Through observing students' lack of response to executing educational units on some days while being much more responsive on other days, the researchers decided to delve into the topic of students' biological rhythm in some of their courses (physical and mental) to understand the extent to which these courses affect the effectiveness and performance of students during educational units in the physical education lesson. The researchers selected 30 students divided into two groups and used the experimental approach to conduct this research, implementing the main experiment by increasing the educational volume, meaning increasing repetitions during the educational units when students are in the positive phase of the biological rhythm courses (physical and mental), as well as decreasing the repetition volume and providing small recreational games during the negative phase of the courses to understand the extent to which these courses affect the learning of some basic skills prescribed in the academic stage.

Keywords. physical training, mental training, biological rhythm, middle school students, sports skills

Introduction:

Overview:

Education in the countries of the world witnesses a scientific approach that understands and recognizes the nature of the student's mind and the sciences that are suitable and serve this level of thinking, through providing educational programs that are appropriate for these ages and their intellectual level. This scientific approach has made education in these countries excel because these countries seek to provide the type rather than the quantity for the student within this level, and this is what we see in European schools and East Asia, such as South Korea, Japan, and the Netherlands, which are leading countries in the scientific ranking in the field of education.

These countries have focused on all types of sciences that are relevant to the student and have a positive impact on them, including physical education and finding everything that serves the student in this subject within their age and intellectual level.

For the importance of the subject of physical education, especially rhythmic movement, which is a branch of the field of motor learning and its scientific significance for

the teacher. This helps him in dealing with the student before and during the lesson by knowing enough about the condition or state that the student is in, whether in a positive or negative rhythm, whether it is physical, psychological, mental, or sensory rhythm. This enables the teacher to take the most appropriate approach in dealing with the student.

The rhythmic movement is defined as regular changes that occur within the body and include physical, emotional, and mental states. This rhythm changes as a result of internal changes that occur within the body (internal rhythm) and is influenced by external variables (external rhythm) surrounding the individual (Saad Kamel Taha, 1994). Therefore, researchers have sought to shed light on these sciences, especially rhythmic movement (physical and mental), and its importance for Iraqi students, as well as to avoid the problems that teachers may face with students and to prevent the problem before it occurs. Among these problems is the student's disengagement from the lesson or their inability to comprehend the motor skills or programs given to them during the annual curriculum plan of the Ministry of Education for physical education in schools. Rhythmic movement refers to regular biological changes with short-term and long-term ranges during which physical, mental, and emotional activity in humans increases or decreases. These changes are associated with the internal and external environment surrounding the individual (Ali Fahmi Al Beik, 1990).

Problem:

The lack of attention from most teachers in dealing with students in Iraqi schools by not taking into account the individual differences among students, as well as their lack of knowledge or application of the sciences of motor learning, specifically rhythmic movement, with the students during physical education class. This kind of approach has caused the problem of students disengaging from the lesson, using excuses such as being injured or not wanting to participate in the lesson with their peers, and these justifications have reasons and causes that led the students to express them during the lesson.

The teacher's lack of effort to expand their knowledge in specialized sciences such as motor learning, which is a part of physical education and sports sciences, and the impact of these sciences on their work during the class with students. Since rhythmic movement is one of the sciences taught in physical education and sports colleges, it has scientific benefits that serve the teacher and the student in facilitating the learning of sports skills and providing a future perspective on the student and how to deal with them during the lesson.

The first researcher, who is a teacher of physical education at the Iraqi Ministry of Education, found that there are colleagues who do not apply the concept of rhythmic movement (whether physical, mental, emotional, or sensory) to their students during physical education class.

Method :

The researchers used the experimental method to design two groups with pre- and post-tests

Study objectives :

1-To determine the teacher's awareness of the students' biological rhythm in their mental and physical cycles.

2-To investigate the application of biological rhythm and how to deal with students in physical education class.

3-To understand the impact of mental and physical biological rhythm cycles on student learning.

Method and Tools:

The researchers identified the research sample, which consisted of 30 students from the second intermediate grade at Ma'adh ibn Jabal Boys' School / Al-Karkh Al-Thaniya Education in Iraq. They divided them into two groups: control group and experimental group, with 15 students in each group. The sample was homogenized by excluding the failing students and those born after 2010. The sample equivalence was ensured through pre-test measurements of the research variable, as shown in Tab(1)

Table (1)

displays the mean, standard deviation, (T) value, and significance level for the pre-test measurements of the control and experimental groups.

moral	Sig)T(Control group		Experimental group		Tests
			sd	M	sd	M	
random	0.645	1.99	0.63	2.91	0.35	2.31	Basketball plump
random			0.12	5.01	0.81	4.66	Dribbling with a soccer ball

The significance level(0.05)

Since the significance level value of 0.05 is higher than the error level value, it can be concluded that there is no significant difference between the two tests, meaning that the two groups are equivalent.

The Tests Used:

The first test used was the Basketball Dribbling Test: (Sami, Yousif, Shaba, 2000, p.101).

Test Name: High start time for fast dribbling over a distance of 20 meters.

Purpose of the test: To measure the speed of dribbling performance. Tools used:

Basketball court, electronic timer, two regulation basketballs, measuring tape, chalk, whistle to signal the start.

Description of performance

1- The player takes a high starting position behind the starting line (A) drawn on the ground, with the ball.

2- The tester gives the starting signal, and the player runs with high dribbling speed to cross the finish line (B).

Test management:

The tester announces the names and gives the starting signal first, then records the results for each player's two attempts. The best score for each player is calculated and announced to the next player to ensure competition.

Scoring:

Each player's score is the time taken to complete the test from the moment the starting signal is given from line (A) to crossing the finish line (B)

The Second Tests of Curved Dribbling in Football:

Curved Dribbling Test between Five Markers (Latif and Kati', 2021, p. 145).

Test Purpose: Measure the speed of football dribbling performance.

Test Method: The tester starts running with the ball when hearing the whistle (start signal) between the five markers from the starting line. The first marker is 3m away from the finish line, the second marker is 4.5m away, the third marker is 6m away, the fourth marker is 7.5m away, and the fifth marker is 9m away. The player must return to the starting line in the shortest possible time.

Equipment Used:

2 regulation footballs, 5 markers, whistle, a 3x9m field, measuring tapes, colored tapes, stopwatch

The test begins upon hearing the whistle start signal *

Each player is given two attempts *

Scoring is based on time (the shortest time for correct performance)*.

The pre-tests were conducted on Tuesday, 20th February 2024, at 9 AM, in the playground of Ma'adh bin Jabal Intermediate School for Boys. The assistant team, consisting of physical education teachers and result recording tools, were present for both tests (basketball dribbling and football dribbling). Based on previous research and studies, the researchers prepared specific exercises for both skills and supervised the work of the assistant team during the instructional units. The application of the instructional units lasted for two months, with two instructional units per week, totaling 16 instructional units. The post-tests for the research sample were conducted on Sunday, 21st April 2024, at 9 AM, in the playground of Ma'adh bin Jabal Intermediate School for Boys, under the same test conditions as the pre-tests. The researchers used the SPSS statistical package

Table (2)

shows the mean, standard deviation, t-value, and significance level for the basketball dribbling test for the control and experimental groups for the post-test.

moral	sig	T	Control group		Experimental group		Tests
			sd	M	sd	M	
moral	0.000	4.63	8.85	7.41	0.45	6.25	Basketball plamp

The significance level(0.05)

The results from Table (2) indicate that there are significant differences in the post-test scores for the basketball dribbling test between the control and experimental groups. These differences are attributed to the effectiveness of the exercises and their increased frequency during the positive phase of the mental and physical cycle. "Biological rhythm is a system of alternating, repeating, and coordinating functional movement in humans" (Nahed Abdul Zaid Al-Dulaimi, 2011). There is a positive impact on the development and speed of performance of this skill, which is consistent with Kamal Jalal's findings in 2022, stating that the positive phase of the physical cycle contributes effectively to increasing the implementation of physical requirements and capabilities, especially during the peak phase of this cycle. In addition, students can absorb many observations expressed by the assistant team and researchers regarding skill performance and implementation of some exercises during the positive phase of the mental cycle. "During the positive phase of the mental cycle, individuals are more attentive, receptive, understanding, and able to interpret information provided or read" (Fahmi Bak, 2006).

Table (3) shows the mean, standard deviation, T-value, and level of significance for the roll test of a football between the control and experimental groups.

moral	sig	T	Control group		Experimental group		Tests
			sd	M	sd	M	
moral	0.000	4.10	0.61	12.8	0.4	12.07	Dribbling with a soccer ball

The significance level(0.05)

Through our observation of Table (3), values and data for the roll test of a football show in favor of the experimental group. Researchers attribute these differences to the method of implementing instructional units by increasing repetitions and exercise volume during students' presence in the positive phase of the physical and mental cycle, which had an effective impact on the execution of the exercises ".The execution of high-volume training during the positive phase has a positive reflection on exercises and their execution." (Hani Mohammad Alderi, 2019)"The intensive implementation of instructional units during the presence of students in the positive phase or the peak of the golden cycle has an effective impact on the execution of required motor tasks and also on decision-making capacity." (Mufti Ibrahim, 2021)

Conclusions:

1-The implementation of instructional units during the positive phase of the physical and mental cycle of the circadian rhythm shows a positive and effective impact.

2-Increasing the volume of exercises during the positive phase of the physical and mental cycle has a positive reflection on physical and motor abilities.

3-Increasing the volume of exercises during the negative phase of the physical and mental cycle has a negative impact on physical and motor abilities.

Recommendations:

-It is necessary to incorporate instructional units into the annual curriculum that take into consideration the circadian rhythm of students.

-Increase the volume of exercises during the positive phases of the circadian rhythm.

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