

DEVELOPMENT OF PSYCHOMOTOR SKILLS OF STUDENTS THROUGH MEANS OF SPORTIVE DANCE RELATED TO INCREASING THE QUALITY OF LIFE AND COMBATING STRESS FACTORS

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Abstract

The paper deals with the issue of the development of psychomotor skills of students at the Faculty of Physical Education and Sport through sports dance, with important influences in the sphere of increasing the quality of life and combating stress. The idea from which the current research started was to find out how much dance can influence the development of the motor skills of the subjects involved in the study, respectively, the level of development of motor skills was checked before and after their involvement in sports dance activities and what is the connection between them and the increase in the quality of life regarding the combating of stress factors.

Introduction

The development of psychomotor skills of students of the Faculty of Physical Education and Sports is a current issue, especially regarding the increase in their level of knowledge and skills, in order to develop them both in terms of physical qualities, but also in terms of psychomotor skills, as future teachers of physical education and sports. Dance has always been a means of relating and developing important skills, especially among the younger generation, which seems to prefer virtual relationships too much lately and is increasingly moving away from real, interpersonal relationships. Through dance, important motor skills are developed, as well as psychomotor skills that help young students in their psychomotor development.

Julia F. Christensen and Dong-Seon Chang, in their work "Dancing is the Best Medicine: The Science of How Moving to a Beat Is Good for Body, Brain, and Soul" based on their research in neuroscience, explain how synchronized movements to a certain rhythm reduce cortisol, stimulate the secretion of dopamine and endorphins, and act as a powerful form of "collective emotional regulation"[3]

"Psychomotor objectives aim at the formation of perceptual and representative skills, dependent on the development of perceptions and representations as psychic processes of empirical, sensory knowledge, conditioned by the "neurological maturation" of the student, by his learning experiences."[1]

Regarding the training of the skills of second-year students at the Faculty of Physical Education and Sports, within the discipline "Corporeal Expression and Motor Communication - Dance", the aim is to develop their motor capacity, by increasing the number of dance-specific skills, on the one hand, and combining them in choreographies, to capture attention and develop coordination, agility and motor memory, on the other hand.

"Motor capacity represents the set of natural and acquired motor possibilities through which efforts of varying structure and dosage can be achieved. It also represents a complex of predominantly motor manifestations (skills and habits), conditioned by the level of development of motor qualities, morpho-functional indices, psychic processes (cognitive, affective, motivational) and metabolic biochemical processes, all summed up, correlated and mutually conditioned, resulting in the efficient performance of actions and acts required by the specific conditions in which motor activities are practiced."[7].

Dr. Ilene Serlin, in the article: "The Power of Dance to Work with Trauma" (published and widely debated in clinical psychology communities, including in Psychology Today and professional journals such as the American Journal of Dance Therapy), shows how severe chronic stress and trauma, which often "block"[8] the brain's verbal capacity, can be processed and eliminated through symbolic movements and rituals of traditional or free dance.

Hypothesis

The specific means of sports dance, such as basic steps from standard dances (Viennese waltz, slow waltz and tango), but also from Latin dances (cha-cha, samba, salsa, jive), introduced into dance lessons for students of the Faculty of Physical Education and Sport, in the form of choreographies, could determine a better education of motor skills, especially general coordination, agility and operational motor memory and could have an important effect in combating stress and increasing the quality of life.

Dr. Sabine C. Koch, in the article published in Frontiers in Psychology, "Effects of Dance Movement Therapy and Dance on Health-Related Psychological Outcomes. A Meta-Analysis Update", talks about the direct effect that dance has in "reducing psychological stress, anxiety and depressive states, improving quality of life and self-image"[6].

The development of psychomotor skills of students at the Faculty of Physical Education and Sports, through the means of sports dance, can therefore be achieved on two basic components of psychomotor skills, both from the point of view of enriching the number of motor skills specific to standard dances and Latin dances, but also on the component of educating the basic motor qualities of second-year students, especially general coordination, agility and of motor-operative memory.

"The specific motor content of dance is embodied in a varied and complex range of movements. The great variety of technical procedures is constantly combined in a multitude of expressive motor structures, dance combinations, choreographic compositions. The manner of composing movements is characterized by a pronounced artistic, expressive, communicative character, thus the form of movement, plasticity, fluidity and body expression, acquire aesthetic attributes. All these characteristics of motor behavior fully engage motor capacity."[4]

The means of sports dance could act optimally in terms of educating students' psychomotor skills, and coordination, agility and motor-operative memory are important psychomotor skills, which can be capitalized on and educated through dance.

"Coordination is mainly taught through repeated practice of motor skills under various conditions, combinations and demands. The more diverse and greater the range of motor skills a student/athlete possesses, the more coordinated and efficient their movements are. Regardless of the complexity of the skill, coordination is the ability that is taught through the repetition of simple or complex exercises, first slowly and then faster and faster, while the body is resting."[10]

"Psychomotor coordination is permanently found in motor learning, which allows athletes to accumulate a very rich practical knowledge base. Thus, psychomotor coordination has a special role in motor learning, the contribution of the normal functioning of the central nervous system allows the development of theories and concepts regarding the individual's behavior throughout the entire sports training, in which motor learning is carried out continuously."[9]

The second-year students from the Faculty of Physical Education and Sport involved in the current study learned a large number of specific dance sports skills in a system of 14 lessons, which was also aimed at developing general coordination, agility and motor-operative memory. Of these, the most important were the basic steps from standard dances, Viennese waltz, slow waltz and tango, and from Latin dances, they learned only the basic step from cha-cha-cha. For a system of 14 lessons in which the training was carried out, the specific content of dance sport was quite extensive. The large number of motor skills quite different in structure, created a favorable climate for educating psychomotor coordination.

Material-method

The purpose of the paper was to specifically verify the degree of development of the students' motor skills, after applying the sports dance means proposed by us to be taught to students within a system of lessons, mainly by checking the level of development of the subjects' agility, general coordination and motor-operative memory and how psychomotor skills influence the increase in the quality of life and whether or not they influence the combating of stress factors.

Dr. Cynthia Grasser, and Dr. Arash Javanbakht, in the article “Moving Through the Trauma: Dance/Movement Therapy as a Somatic-Based Intervention for Addressing Trauma and Stress Among Syrian Refugee Children” (published in the Journal of the American Academy of Child & Adolescent Psychiatry), analyzes the impact of dance therapy on children exposed to stress and explains how mirroring techniques and body movements during dance, “calm the sympathetic nervous system, the one responsible for the “fight or flight” stress response, and restore a state of safety to the body.”[5]

Marian Chace, in her work “Foundations of Dance/Movement Therapy: The Life and Work of Marian Chace”, details the “Chace Method”[2], which explains how the use of rhythm in a group breaks patterns of muscle tension caused by stress and allows patients to express their anger.

In order to achieve the proposed goal, we used the experimental method and two groups of subjects were involved in the research, one experimental and one control.

The subjects of the experimental group were students of the Faculty of Physical Education and Sports, to whom the sports dance means proposed by us were applied. As a result of the experiment undertaken, we conducted an analysis and synthesis of the data obtained from the agility, general coordination and motor-operative memory tests and formulated conclusions regarding the development of the motor skills of the subjects involved in the study. In parallel, the students answered a questionnaire on the role of dance in combating stress and increasing the quality of life. Subsequently, a comparison was made between the results obtained in the motor tests and the results obtained in the questionnaire on combating stress and increasing the quality of life, thereby seeking to find out if there is a connection between psychomotricity, combating stress and increasing the quality of life.

The experiment was conducted on 40 students who were divided into two groups, one experimental and one control. Both groups conducted 14 dance lessons of 90 minutes each. The experimental group was applied the means and methods proposed by us, based on a system of steps and combinations of steps that were later linked and formed a choreography, while the control group used classical means, dance steps repeated in isolation, individually, without creating a choreography. The same questionnaires regarding combating stress and increasing the quality of life were applied to all subjects participating in the experiment.

The tests used in the research were the Hexagon test to verify the subjects' agility, the Boomerang test to verify general coordination and the test to verify motor memory by creating a dance choreography and recording the number of mistakes.

The subjects of both groups were initially tested at the beginning of the semester on all three tests, after which the dance program proposed by us was applied, in the form of choreographies, during 14 lessons to the subjects of the experimental group. The control group performed the same dance steps, but repeated

in isolation, individually, without composing choreographies. At the end of the semester, the final tests were carried out and the results obtained were recorded, making an analysis and a synthesis of the data obtained.

At the end of the semester, it was administered to the experimental group and the control group also, a questionnaire with 16 questions related to the role of dance in developing students' motor skills, combating stress, and increasing quality of life was applied to the experimental group.

Method of teaching the content of sports dance

In the first lesson, the basic step of the slow waltz was learned, performed isolated, individually, facing point 1

In the second lesson, the basic step of the slow waltz was repeated and the basic step of the tango was learned.

In the third lesson, the basic steps learned in the first two lessons were repeated and performed first individually and then in pairs.

In the fourth lesson, the basic steps were repeated, individually isolated, then in pairs and turns were learned, individually and then in pairs.

In the fifth lesson, the basic steps of the waltz and tango were repeated in pairs

In the sixth lesson, the basic steps of the cha-cha-cha were learned individually

In the sixth lesson, the basic steps of the cha-cha-cha were learned in pairs

In the seventh lesson, the basic steps of the cha-cha-cha were repeated in pairs, Tri-Cha-Cha, New York.

In lessons 8-14, the choreography was created and repeated in the experimental group, and in the control group, the skills learned in lessons 1-7 were repeated in pairs, without choreography.

Choreography with four different types of dance structured on a musical collage applied to the experimental group.

Results

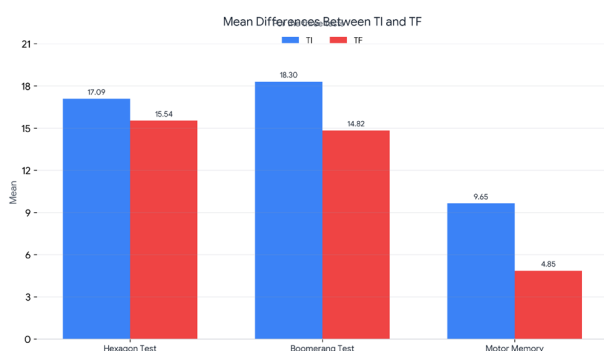
Table 1. Results of the experimental group for the three tests

no.	Name	Gen		Hexagon Test		Bumerang Test		Motor memory testing	
				T.I.	T.F.	T.I.	T.F.	T.I.	T.F.
1	A.C.	F	21	17,21	16,32	19,43	12,56	10	6
2	B.C.	F	21	15,89	14,24	17,24	15,32	11	5
3	C.I.	F	21	15,01	14,22	19,23	16,33	9	4
4	C.I.G.	F	22	18,14	16,31	20,13	14,31	11	6
5	C.G.	F	21	19,34	17,38	18,29	15,23	8	3
6	F.A.	F	22	14,95	14,09	17,04	13,23	10	5
7	G.A	F	21	19,57	16,42	20,14	16,36	9	4
8	I.A	F	21	17,81	15,03	19,33	15,32	10	5
9	M.L.	F	21	17,71	16,55	16,42	12,42	9	5
10	S.G.	F	22	14,75	13,12	18,33	15,23	10	4

11	A.I	M	21	15,33	14,24	19,3	14,03	11	6
12	A.G.	M	22	16,22	15,28	20,24	17,17	10	4
13	A.A-Ș	M	21	17,13	16,03	19,33	15,26	9	3
14	A.T.	M	23	18,22	15,37	18,14	16,01	8	5
15	A.F-D	M	22	19,08	17,12	16,38	14,29	10	6
16	A.A.	M	21	18,53	18,31	17,44	15,03	9	5
17	B.A.	M	21	18,24	16,1	16,13	14,49	10	6
18	B.D.	M	22	15,33	13,25	18,27	16,24	11	4
19	C.I.	M	22	19,01	17,42	20,01	15,2	10	6
20	G.M.	M	21	14,33	14,05	15,24	12,28	8	5
x	17,09	15,54	18,30	14,81	9,65	4,85	14,81	9,65	4,85
S	1,67	1,44	1,47	1,34	0,96	0,96	1,34	0,96	0,96
CV	0,09%	0,09%	0,08%	0,09%	0,09%	0,19%	0,09%	0,09%	0,19%

Table. 2. Results of the control group for the three tests

Tests	T.I. (Medie)	T.F. (Medie)	Difference (T.I. - T.F.)	Progres / Schimbare Progress / Change
Hexagon Test	16,37	15,46	-0,91 s	Time decrease (Better time)
BumerangTest	18,85	16,61	-2,24 s	Time decrease (Better time)
Motric Memory	10,90	7,50	-3,40	Fewer errors/points (Better performance)



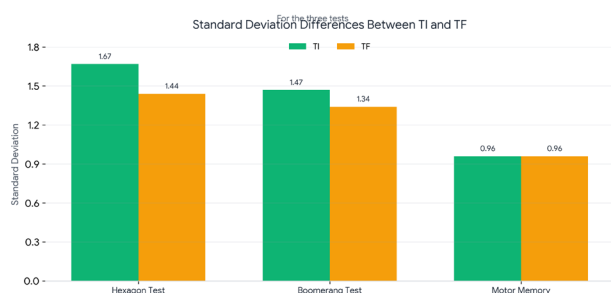
Graph No. 1. Representation of results for the experimental group.

It can be seen that the biggest difference between the initial and final testing appears in motor memory, followed by the Boomerang test, while the smallest difference is in the Hexagon test.

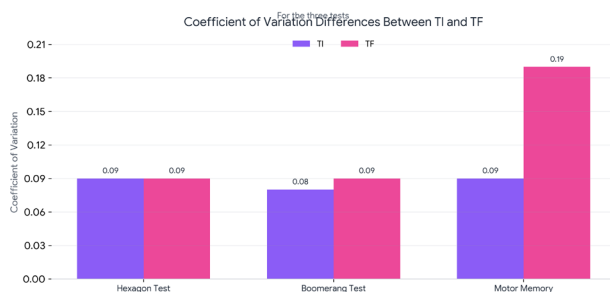
From the difference in averages presented in the chart above, there is an observed increase in the average for the experimental group in the Hexagon test, with a difference of 1.55 seconds between the initial testing, which had an average of 17.09 seconds, and the final testing, which had an average of 15.54 seconds.

In the Boomerang test, the experimental group had an average of 18.3 seconds in the initial testing, and 14.82 seconds in the final testing, showing an average difference of 3.49 seconds from the initial to the final testing.

In the motor memory test, the experimental group had an average of 9.65 mistakes in the initial testing and 4.85 mistakes in the final testing, which means an average difference of 4.80 mistakes from the initial to the final testing.



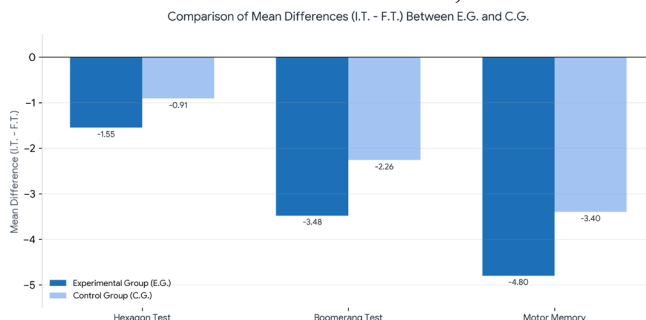
Graph No. 2. Representation of results for the the differences in standard deviation between T.I. and T.F. in the experimental group



Graph No. 3. Representation of results for the the the differences in the coefficient of variability between T.I. and T.F. in the experimental group

Table 3. Differences between the arithmetic means obtained by the two groups: experimental and control.

Tests	Difference T.I-T.F G.E.	Difference G.C.	T.I-T.F
Hexagon Test	-1,55	-0,91 s	
Bumerang Test	-3,49	-2,24 s	
Motor memory Test	-4,80	-3,40 mistakes	



Gr. No 4. Differences between the arithmetic averages

The standard deviation decreases for Hexagon and Boomerang, which suggests more consistent final results, while motor memory remains constant.

The coefficient of variation stays the same for Hexagon, increases slightly for Boomerang, and rises more clearly for motor memory, where the relative dispersion is higher at the final testing.

There is a noticeable difference between the results obtained by the experimental group in all three tests compared to the control group results, which proves that our proposed method for teaching dance to students using choreography made up of four different dances worked really well. This is demonstrated by the agility indicators (obtained through the Hexagon test), which were lower in the experimental group compared to the control group, the general coordination indicators (obtained through the Boomerang test), which were faster in the experimental group than in the control group, and the motor memory indicators, which were better in the experimental group compared to the control group, represented by a lower number of mistakes.

Discussions

Analyzing the results obtained, it can be said that the method used for teaching sports dance steps according to the model proposed by us, in the form of choreographies made up of several types of dances, contributed greatly to the development of agility and general coordination, but also to the development of motor-operative memory in students of the Faculty of Physical Education and Sports.

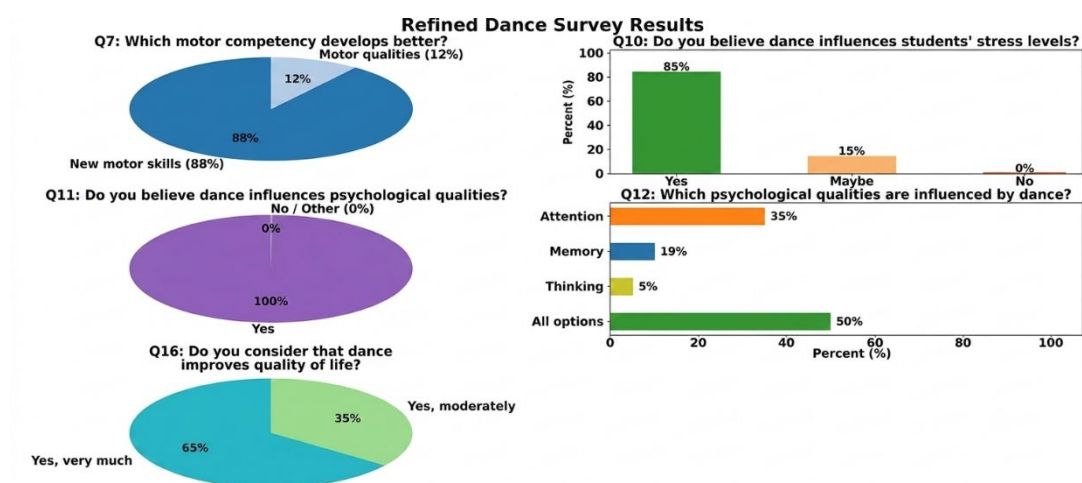
Interpretation of data from the difference chart for the experimental and control groups:

1. Direction of values (Negative): Negative values represent a decrease (reduction) between the Initial Test and the Final Test. For the timed tests (Hexagon, Boomerang) and the precision test (Motor Memory – number of errors), a decrease in value represents direct progress (shorter time or fewer errors).

2. Experimental Group (EG) Performance: Across all three tests, the Experimental Group (dark blue bars) recorded a significantly greater decrease in time and errors compared to the Control Group (light blue bars):

- Hexagon Test: The EG reduced its time by 1.55 s, compared to only 0.91 s for the CG.
- Boomerang Test: The EG reduced completion time by 3.49 s, while the CG reduced it by 2.24 s.
- Motor Memory: The EG eliminated an average of 4.80 errors, unlike the CG, which reduced errors by only 3.40.

In conclusion, the program or intervention applied to the Experimental Group generated visibly greater improvements in motor performance and movement memory compared to the natural progression or standard program of the Control Group.



To question no. 7, "Which component of motor skills do you think is developed the most through dance?", 90% answered new motor skills and 10% answered motor qualities. To question no. 10, "Do you consider it possible for dance to influence students' stress?", 85% answered "yes" and only 15% answered "maybe," no student answered "no." To question no. 11, "Do you think dance also influences mental qualities?", 100% answered "yes." To question no. 12, "Which mental qualities are influenced as a result of practicing dance? 35% of the students answered a) attention, 10% answered b) memory, 5% answered c) determination and 50% answered d) all of the above. To question number 16 Do you think that dancing improves the quality of life?, 65% answered a) yes, very much and 35% answered b) yes moderately.

About Q7 and Q12 (Correlation with practical tests): A strong awareness of the students on new motor skills is observed (90%). To the question related to mental qualities, although some isolated attention (35%), half of the respondents (50%) realized the complex nature of dance, correctly selecting the option "all", thus validating the experimental data (where clear progress was seen on attention, motor memory and reaction times).

On Psychological Impact and Quality of Life (Q10, Q11, Q16): The results demonstrate an absolute consensus (100%) regarding the impact of dance on the psyche. Correlated with the fact that 85% see the fight against stress as certain, and 65% consider that their life is improved "a lot", the data strongly support the introduction or recommendation of dance as a basic physical activity in the university environment for the management of academic stress.

As a final conclusion, it can be said that by teaching dance to students, in the form of choreographies made up of four different types of dance, the psychomotor skills of 21-22-year-old students are developed, especially in terms of agility and overall coordination. It also helps develop motor-operational memory, all of which have a beneficial effect in reducing stress and improving the quality of life for the students participating in the study.

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